

# ESAOTE

THE IMAGE OF INNOVATION™



MR

## Service Manual Site Planning Guide

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# Part 1 Introduction

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## General

**The installation and service of equipment described herein is to be performed by qualified personnel which is employed or authorized by ESAOTE or one of its affiliates.**

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This planning guide provides a description of the items to be considered when planning the installation of the system in order to assure its safe operation.

Like other MR systems, the system is sensitive to RF interference. Therefore, a modular optional pavilion is used to shield the system from external RF noise. If already in place, a standard RF cabin can be used instead.

As the system has an open architecture it is also more sensitive to low frequency magnetic field fluctuations than a closed system. Up to a certain limit, the system's EFI unit can compensate for these fluctuations.

To ensure that the external RF noise and the magnetic field fluctuation do not exceed the specified limits, site survey measurement has to be performed (see also RF and Magnetic Field Interference and Annex 2, Preliminary Site Survey).

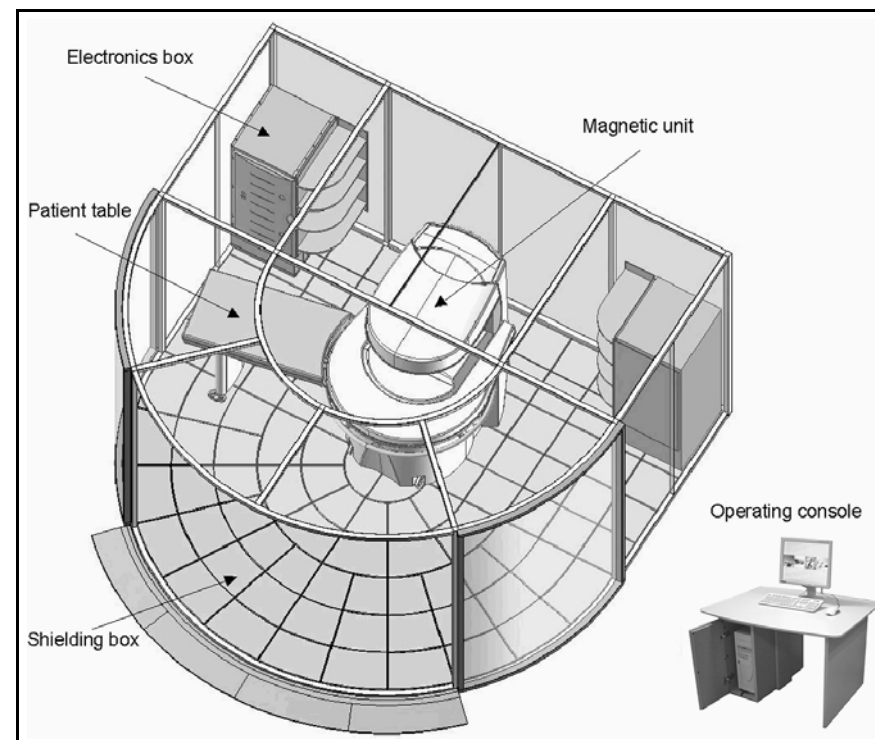
Refer to Annex 1 for an overview of actions to be taken while planning a system installation.

## System Components

Refer also to the next figure:

- Magnet unit, including a vertical magnetic field type permanent magnet
- Patient table
- Operator console, including Computer Unit, monitor, keyboard and mouse
- Modular shielding pavilion (optional)
- Electronic box (can be placed left or right Pavilion corner)
- Phone outlet for modem and Network (from the Computer Unit)
- Cable duct (only three cables from the Electronic Box to the Computer Unit)
- EFI unit to compensate for magnetic field fluctuations (not shown in figure)
- Coil rack (optional, shown in figure in the right Pavilion corner)

Fig. 1: System Components



## Optional Modular Shielding Pavilion

The optional modular shielding pavilion protects the System from external RF noise. The attenuation of the pavilion is at least 70 dB at a frequency of 7.8 MHz.

The pavilion has been designed in such a way that it can be installed with minimal effects on the room infrastructure.

The Pavilion is not provided with the system: it has to be ordered.

The pavilion is composed of modular elements made of perforated steel panels that are attached to steel support frames. This construction allows the pavilion to use the same lighting and ventilation supplied to the room. It eliminates the need for a dedicated air conditioning system and possibly even internal lighting as well.

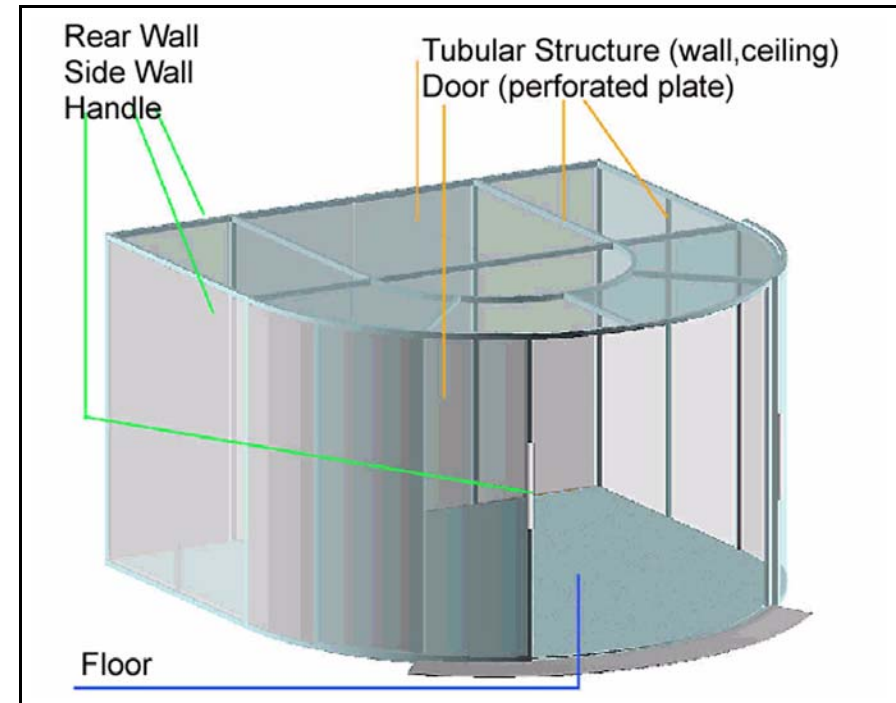
There are two sliding doors available for access. For better adaptation to the room layout, the doors can be mounted either centrally or half-left or half-right with regard to the center position.

All the parts are assembled with hardware that makes it easy to disassemble and reinstall the pavilion. The size and weight of the modules make handling easy.

The pavilion can be completely mounted from inside. Therefore, the pavilion can even be installed in corners, partitioned-off rooms or rooms slightly larger than the pavilion itself.

|        |                                                                                                                                   |
|--------|-----------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | Ensure that a craftsman is available for covering the floor of the pavilion with linoleum (supplied) after siting the magnet unit |
|--------|-----------------------------------------------------------------------------------------------------------------------------------|

Fig. 2: Pavilion 3D view



The doors can be installed on the right side and on the lateral side, instead of the central position, as is shown in the follow picture.

For the Pavilion dimension refer to the Dimension of System Components paragraph of the Part3: Technical Data.

Fig. 3: Pavilion layout right door

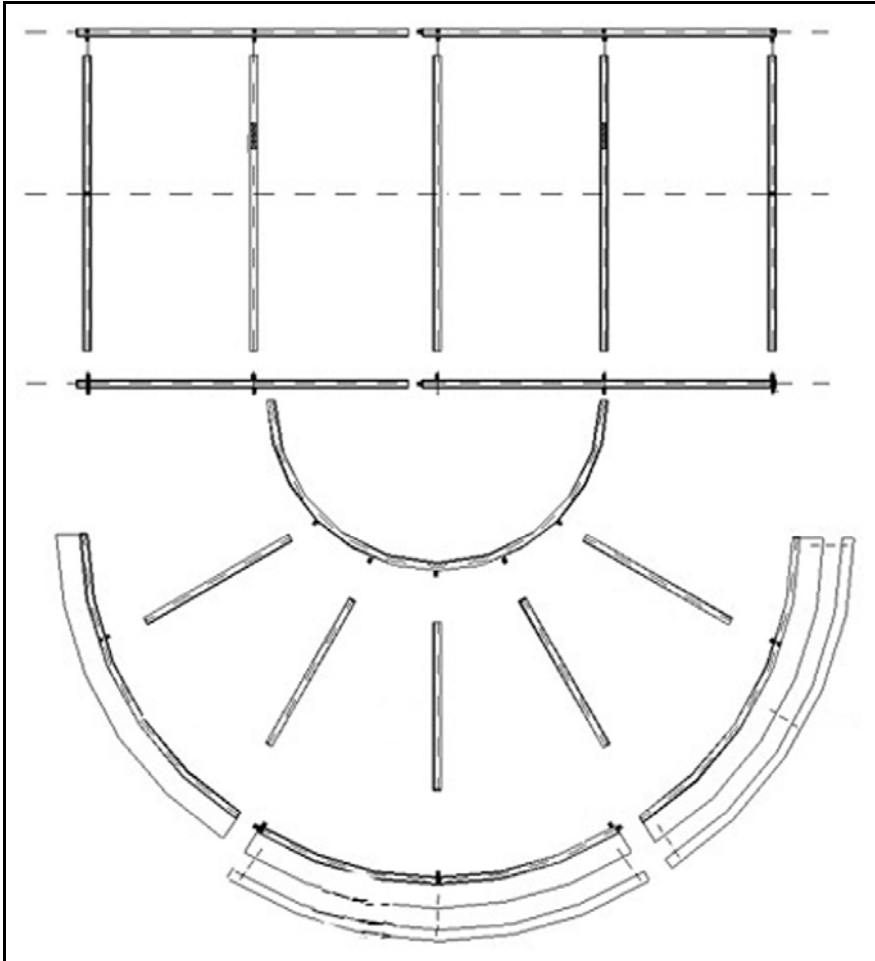
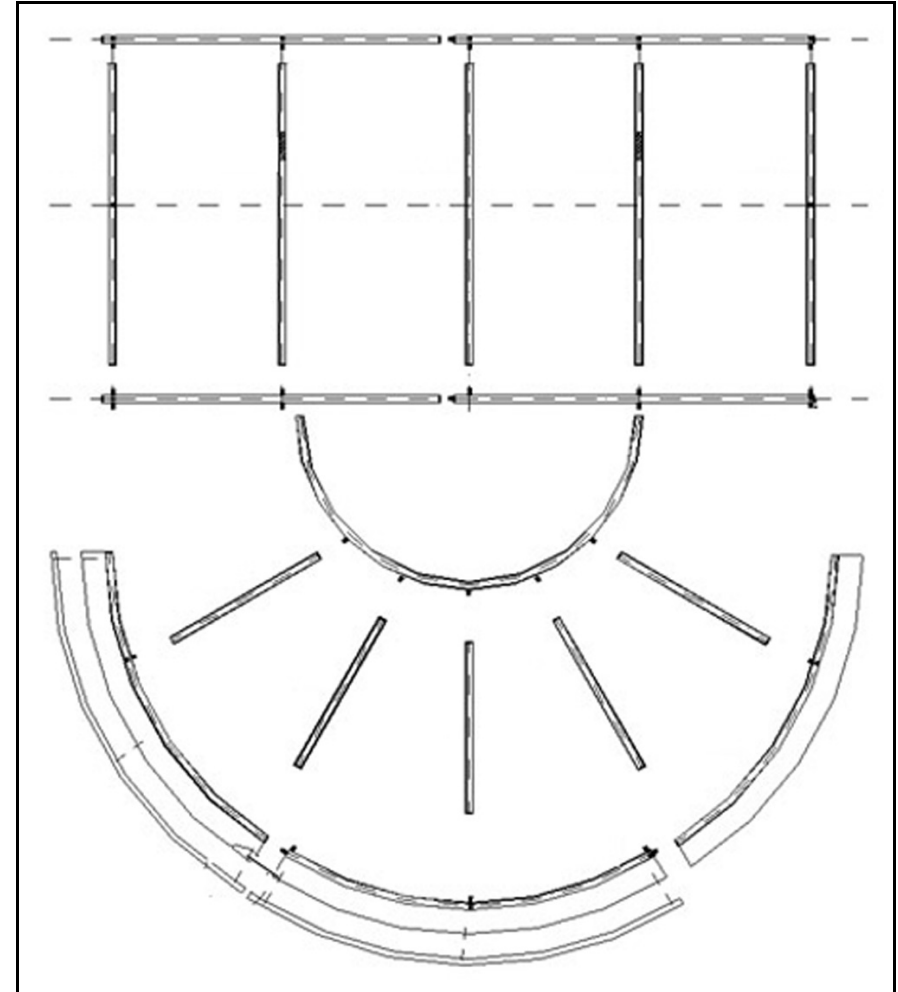


Fig. 4: Pavilion layout left door



# Patient Routine Monitoring

To guarantee acoustic and visual contact between the physician and the patient during examination, the system has been equipped with a semi-transparent Shielding Box.

The acoustic contact feature is achieved through the use of perforated metallic panels for the Box mechanical structure, while appropriate Shielding Box inside and outside lighting achieves visual contact.

---

|        |                           |
|--------|---------------------------|
| NOTICE | The Pavilion is an option |
|--------|---------------------------|

---

If the system is installed inside a traditional shielding cabin the following restrictions should be kept in mind:

- The cabin should be equipped with a window with a grid to enable acoustic contact between the physician and the patient. As an alternative an intercom system has to be used to ensure a possible communication between the patient and the operator. The intercom has to be ordered locally (not available from ESAOTE). It must not create interference to the MR system
- The pavilion inside and outside lighting should be properly set for visual contact; moreover the system installation position should be frontal to the window in order to enable the physician to check the patient through the magnet C shaped opening during the examination

## Safety Notes

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The magnet installed in the scan room is always under field and attracts magnetic material. The apparatus and instruments to be carried into the pavilion should be non-magnetic. Gurneys, stretchers or other large metallic objects, which may possibly be attracted to the magnet, can be dangerous. It could be useful to differentiate these objects from the standard furnishings through the use of color-coding. Items must not be brought into the pavilion unless they are made of non-magnetic material.

In general, people must be prohibited from entering the scan room. Local regulations require that warning signs be posted with respect to possible malfunctioning of instruments or pacemakers due to the fringe magnetic field. Preventive measures must be taken with regard to this.

A warning sign calling the attention of the hospital workers and patients entering the scan room must be posted (refer also to next figure). Carrying a watch, credit card, etc., into the pavilion may cause them to malfunction.

Fig. 5: Warning Sign



# Part 2 Planning

## Room

### Room Size

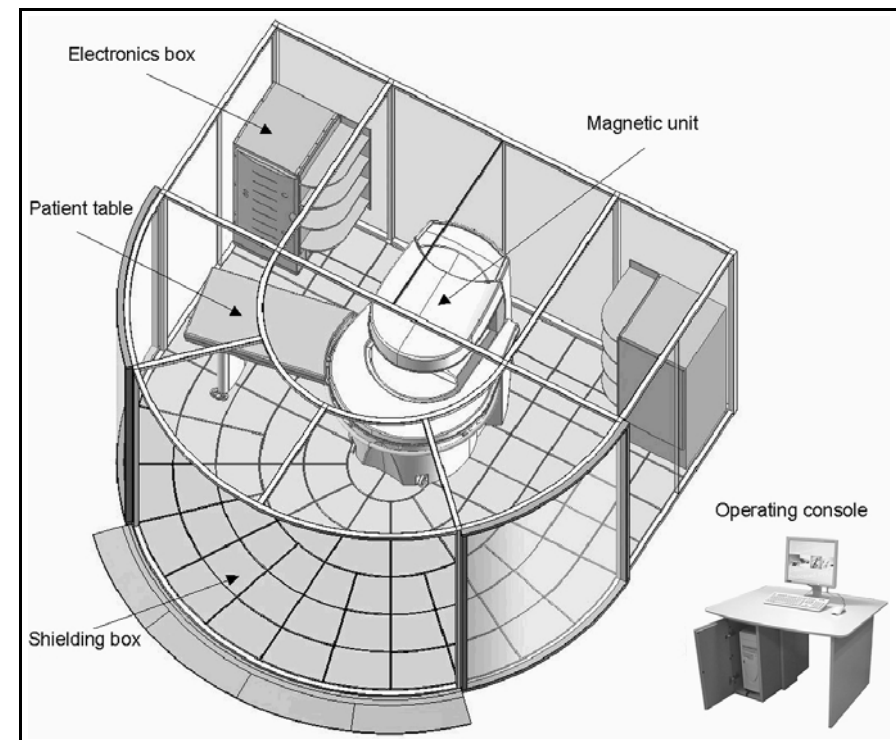
Only one room is required to install the system.

The minimum space required for the installation of the system, including the pavilion, is 4.0 m x 4.5 m x 2.4 m.

Tab. 1: Minimum Space Requirements

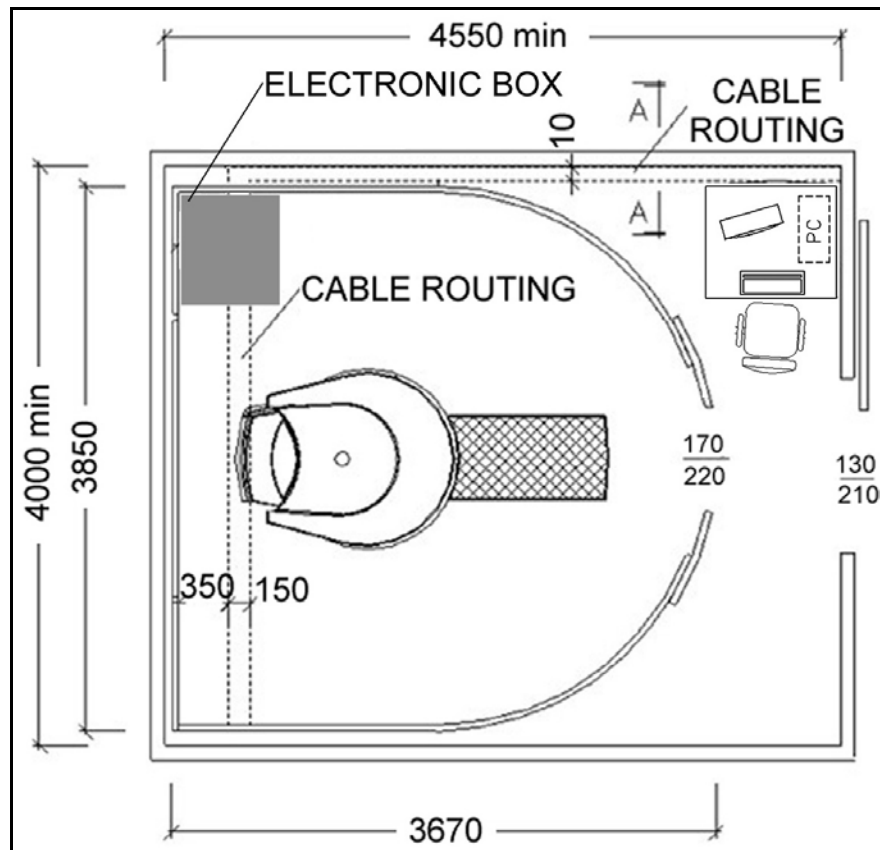
| Minimum Space Requirements |
|----------------------------|
| 4.0 m x 4.5 m x 2.4 m      |

Fig. 6: Magnet and Pavilion View



## Recommended Room Configuration

Fig. 7: Recommended Room Configuration



# Floor

## Floor Load

The floor must be able to support the weight of the magnet unit (2100 kg), pavilion (1300 kg), operating console (50 kg) and three people (250 kg). Therefore, the floor may have to be reinforced to sustain a total load of 3800 kg.

Tab. 2: Floor Load Requirements

| Floor Load Requirements |
|-------------------------|
| 3800 kg                 |

## Floor Leveling

In order to allow the pavilion to be installed directly on the floor, the floor must be leveled to within 5 mm / 3 m.

Tab. 3: Floor Leveling Requirements

| Floor Leveling Requirements |
|-----------------------------|
| 5 mm / 3 m                  |

|        |                                                                                |
|--------|--------------------------------------------------------------------------------|
| NOTICE | The floor leveling must be maintained very carefully after system installation |
|--------|--------------------------------------------------------------------------------|

## Iron plates in floor

Tab. 4: Iron plates in floor (static interference)

| Iron plates in floor (static interference) |
|--------------------------------------------|
| <30kg/m <sup>2</sup>                       |

## RF & Magnetic Field Interference

The surroundings of any MR-site must be examined very carefully. In the case of System sites, it is imperative to check for external magnetic and RF interference (EMI and EFI) at an early stage of the project. This check is called a “site survey” and consists of a set of measurements that must be performed by a site survey specialist. These results are then compared to the corresponding specifications (refer also to table 5 and to table 6).

The first step is to complete the Preliminary Site Survey Report (refer to Annex 2) during the sales phase of the project, and to return it to your site survey specialist. This information is needed in order to estimate installation costs, the costs associated with the measurement, and to determine whether or not a system can be installed at that particular location. However, the final decision on the suitability of the site depends on the results of site measurements, and not on the Preliminary Site Survey Report.

|        |                                                                                                                                                                  |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | Both RF noise and magnetic field fluctuations are determined during the site survey using specially designed measuring equipment (SMD, Site Measurement Device). |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## RF Noise

Because the optional Shielding Box has limited shielding capabilities ( $\geq 70$  dB at a frequency of 7.8 MHz), the external RF noise must be no more than 40 dB  $\mu$ V/m in at least 95% of the measurements.

Tab. 5: Maximum RF Noise

| Maximum RF Noise |
|------------------|
| 40 dB $\mu$ V/m  |

|        |                                                                                                                                                                          |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | IF THIS THRESHOLD IS EXCEEDED IN NO MORE THAN 5% OF MEASUREMENTS DURING THE USUAL WORK TIME FOR THAT MRI SYSTEM, THE INSTALLATION ROOM IS ALSO TO BE CONSIDERED SUITABLE |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Magnetic Field Fluctuation

The need for EFI compensation and the shielding method must be determined according to the quasi-static (DC, < 5 Hz) and slow-changing magnetic field fluctuation (AC, 16-20 Hz; AC, 50-60 Hz). All the values below refer to peak/peak fluctuation in the proposed position of the magnet center.

The DC values, measured by SMD, to be considered are the peak/peak variations within a window of ten minutes. When measuring AC fluctuation you must consider if RMS of peak/peak values have been recorded.

Tab. 6: Maximum Values without EFI

| Maximum Values without EFI |                     |
|----------------------------|---------------------|
| DC (< 5 Hz)                | 30 nT pkpk (0.3 mG) |
| AC (16.7 Hz)               | 6 nT pkpk (0.06 mG) |
| AC (50-60 Hz)              | 20 nT pkpk (0.2 mG) |

Tab. 7: Maximum Values with EFI

| Maximum Values with EFI |                      |
|-------------------------|----------------------|
| DC (< 5 Hz)             | 3000 nT pkpk (30 mG) |
| AC (16.7 Hz)            | 600 nT pkpk (6 mG)   |
| AC (50-60 Hz)           | 1000 nT pkpk (10 mG) |

In order to keep these values valid, no more than one source must be present within the limit shown in the Maximum Values without EFI table. Particular restrictions apply for moving iron masses (see the next table). Moved iron masses must be further than the distance from the magnet center as defined in the following table.

Tab. 8: Iron Masses Weight

| Weight   | Moving Direction                |             |
|----------|---------------------------------|-------------|
|          | X (Front-Back),<br>Y (Vertical) | Z (Lateral) |
| 50 kg    | 5 m                             | 4 m         |
| 200 kg   | 7 m                             | 5 m         |
| 900 kg   | 9 m                             | 6 m         |
| 4500 kg  | 15 m                            | 10 m        |
| 20000 kg | 25 m                            | 20 m        |

Regarding AC sources, no cables must run in the ceiling or in the floor of the installation room, especially if their path is not fixed and stable.

## Particular Situations

In some cases, it is possible to install the system with even higher magnetic field fluctuation and particularly as reported below:

Tab. 9: Maximum Values for DC with EFI

| Maximum Values for DC with EFI                |                 |
|-----------------------------------------------|-----------------|
| Underground lines or trams further than 100 m | 1500 nT (15 mG) |

In this case the transversal component must always be checked and the values must be lower than the Maximum Values with EFI.

Tab. 10: Maximum Values for AC with EFI

| Maximum Values for AC with EFI                   |                 |
|--------------------------------------------------|-----------------|
| Single confined sources, transformers and motors | 2000 nT (20 mG) |

A very important parameter to take into consideration is the time stability of AC disturbance. The more stable the level of the disturbance, the simpler a good compensation will be.

|        |                                                                                                                                                                                                                                                     |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | If MRI equipment is installed near the system, the gradient fringe fields must also be considered and treated as any other external magnetic field fluctuations. For this reason refer to the table Maximum Values without EFI in the previous page |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Static Magnetic Field Generated by Other Sources

The Static Magnetic Field generated by other sources (e.g. MRI systems) can influence the System performances. For this reason the fringe field of the external MRI equipment must be at maximum **0.1 mT (1G)** on the external boundaries of the Pavilion.

Tab. 11: Static Magnetic Field

| Fringe Magnetic Field of External MRI Equipment                     |
|---------------------------------------------------------------------|
| 0.1 mT line (at maximum) on the external boundaries of the Pavilion |

|        |                                                                                          |
|--------|------------------------------------------------------------------------------------------|
| NOTICE | If this situation occurs, in some cases, the system could require some tuning operations |
|--------|------------------------------------------------------------------------------------------|

## Minimum Distance to Sources of Interference

If the system needs to be equipped with an EFI unit, the following minimum distances between the corresponding source of interference and the EFI must be observed:

Tab. 12: Minimum Distance to Sources of Interference

| Sources of Interference                       | Minimum Distance      |
|-----------------------------------------------|-----------------------|
| a) AC 50 Hz or 60 Hz                          | >10 m                 |
| b) AC 50 Hz or 60 Hz: Transformers, fans      | >10 m                 |
| c) AC 16.6 Hz or other train frequencies      | >400 m                |
| d) Moving iron (dynamic interference)         |                       |
| – <50 kg: Wheel chair, etc.                   | Refer to Tab.8        |
| – 200 kg: Patient bed, etc.                   | Refer to Tab.8        |
| – 900 kg: Car, small elevator, etc.           | Refer to Tab.8        |
| – >4500 kg: Truck, large elevator, etc.       | Refer to Tab.8        |
| – >20000 kg: big Truck, Excavator, etc.       | Refer to Tab.8        |
| e) DC cables from trams or subway             | >50 m                 |
| f) Iron plates in floor (static interference) | <30 kg/m <sup>2</sup> |

## Environment

To achieve optimum performance from the installed system, it is important to provide patients and operators with a comfortable environment, as well as to meet the temperature, humidity and other environmental conditions that each system component requires.

Tab. 13: Environmental Requirements

| Environmental Requirements |                           |
|----------------------------|---------------------------|
| Temperature range          | 20 - 26 °C / 68 - 78.8 °F |
| Temperature stability      | 3 °C/h / 5.4 °F/h         |
| Humidity range             | 45 - 80%                  |

Fahrenheit = (1.8 x Centigrade) + 32

Centigrade = 0.56 x (Fahrenheit - 32)

## Building Vibrations

Building vibrations or shocks affecting the magnet may degrade image quality. Vibrational acceleration  $a_{\max}$  transferred through building vibrations to the magnet must not exceed the value of -70 dB(g) for all three spatial orientations in the frequency range from 0 to 100 Hz.

---

NOTICE  $a_{\max}$  is the maximum rms value measured in the Fourier transformation of the recorded signal spectrum

---

Tab. 14: Building Vibration Requirements

| Building Vibration Requirements |           |
|---------------------------------|-----------|
| $a_{\max}$                      | -70 dB(g) |

---

NOTICE The building vibration measurement must be performed during the site survey acquisition

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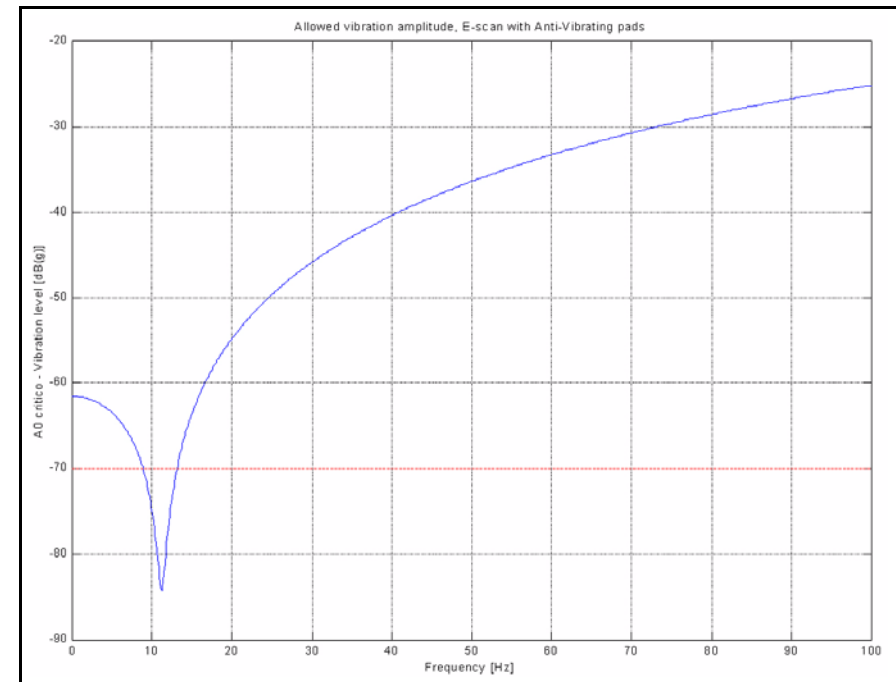
NOTICE The presence of other equipment (e.g. MRI systems) in the building, can determine the maximum level of vibrations; therefore vibration measurements must be performed during working hours

---

The normal threshold for these feet is fixed to -70 dB(g) from 0 to 100 Hz but we advised a small range of frequencies (from 9 to 13 Hz) where the threshold is much more restrictive and equal to -83 dB(g).

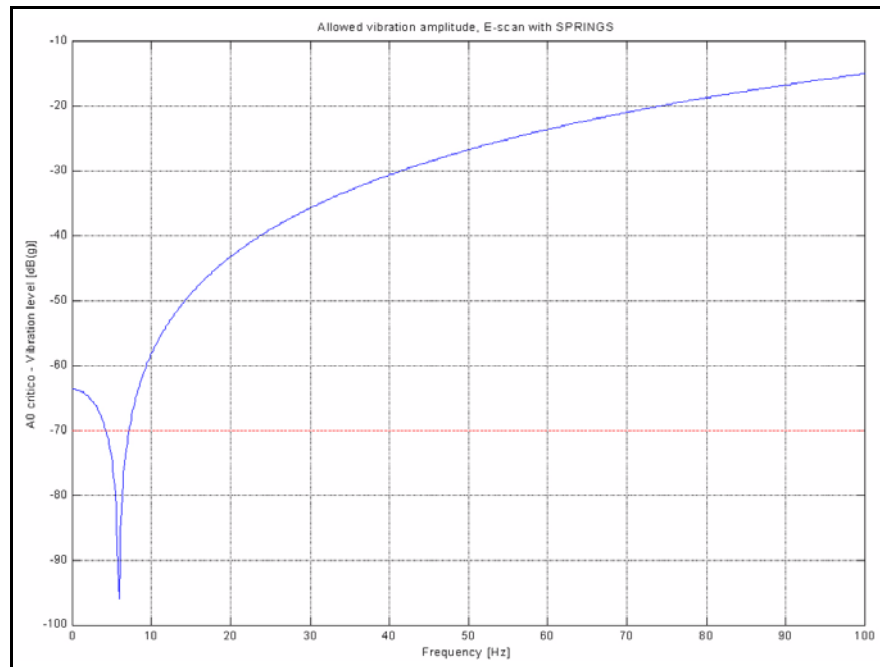
These frequencies are related to the Foot Resonance Frequency of  $\approx 11$  Hz, like shown in the next figure.

Fig. 8: Normal Anti-Vibrating Feet



The Resonance Frequency of these feet is equal to  $\approx 5.9$  Hz and the warning level is for 4 to 7 Hz. In this range the vibration threshold is fixed to -95 dB(g) while in all the other frequencies is fixed to -70 dB(g) like shown in the next figure.

Fig. 9: Anti-Vibrating Feet with Springs



Install the Anti-Vibration Feet with spring in case of vibration at the warning frequencies of the Normal Anti-Vibration Feet.

Tab. 15: Anti-Vibration Feet Warning Levels

| Anti-Vibration Feet Warning Levels |                 |
|------------------------------------|-----------------|
| Normal Feet                        | from 9 to 13 Hz |
| Feet With Springs                  | from 4 to 7 Hz  |

## Power and Grounding

Due to the sensitivity of the system to RF interference, great care should be taken when providing the power supply and when grounding the system.

To safely operate the installed system, dedicated power supplies must be provided for the MRI system and the air-conditioner, as well as any lighting equipment and convenience outlets.

A switch box should be provided on the wall of the room, with separate switches for each of the above power supplies to allow system maintenance and service. Simultaneous use of the power supply for the system with air-conditioning, lighting and other electrical equipment is not allowed.

Also, the on-site power installation must provide an emergency power switch.

The power requirements are listed in the following table.

Tab. 16: Power Requirements

| Power Requirements |                                   |
|--------------------|-----------------------------------|
| Power requirements | AC 100/110/220/230/240 V $\pm$ 1% |
| Frequency          | 50/60 Hz $\pm$ 1Hz                |
| Power              | 1.3 kVA                           |

## Power supply cable

The power supply cable, provided with the system, is a three-wire, 10m long, shielded cable with a 1.5mm<sup>2</sup> section. See the next table for the characteristics of the power supply cable.

Tab. 17: Power Supply Cable Features

| Power Supply Cable Features |                     |
|-----------------------------|---------------------|
| Section                     | 1.5 mm <sup>2</sup> |
| Length                      | 10 m                |

## System Grounding

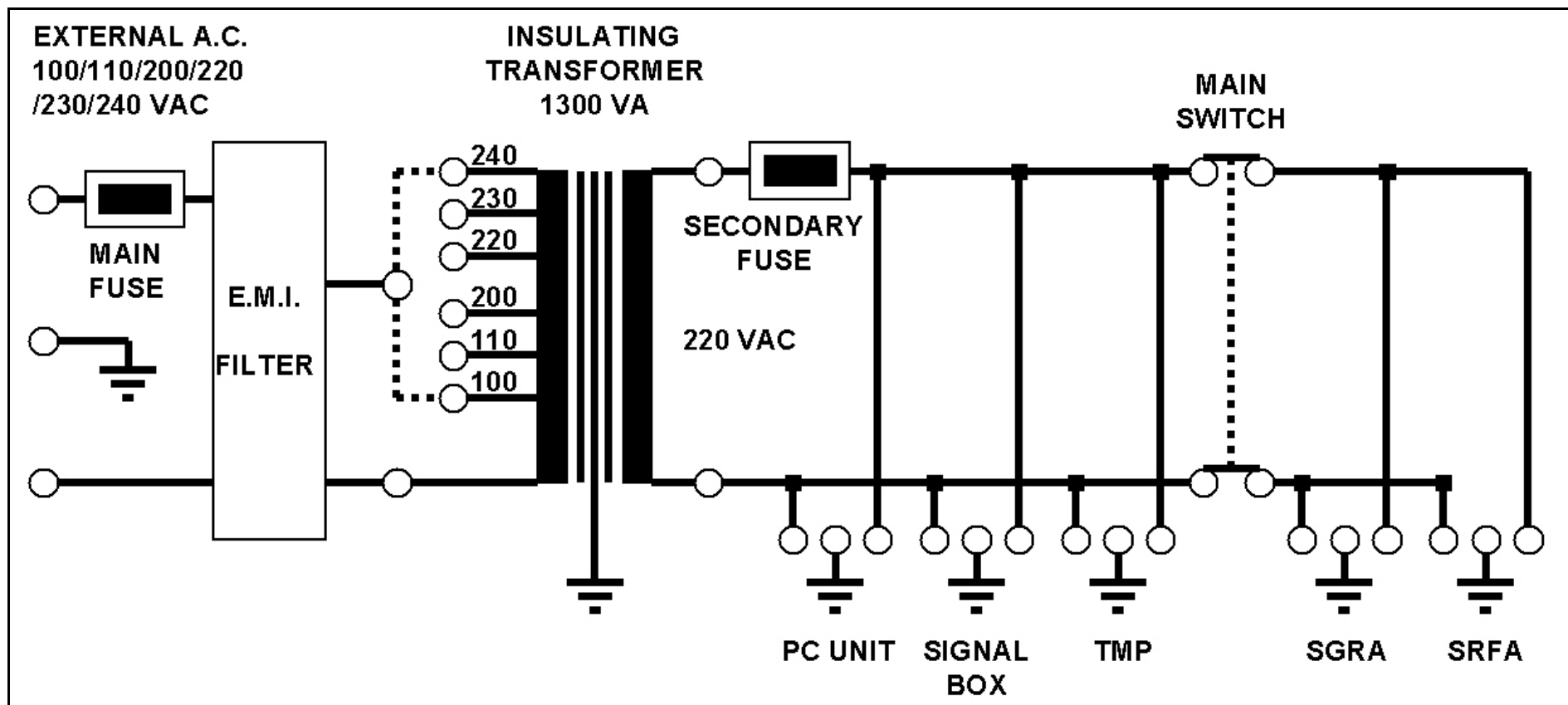
The grounding conductor must be insulated and must not be electrically connected to surrounding structures. To ensure that the system is grounded properly, the modular shielding pavilion is insulated from the floor via corresponding insulating sheeting.

# System Main power distribution

## Main power distribution

The main power distribution diagram is shown in the next figure.

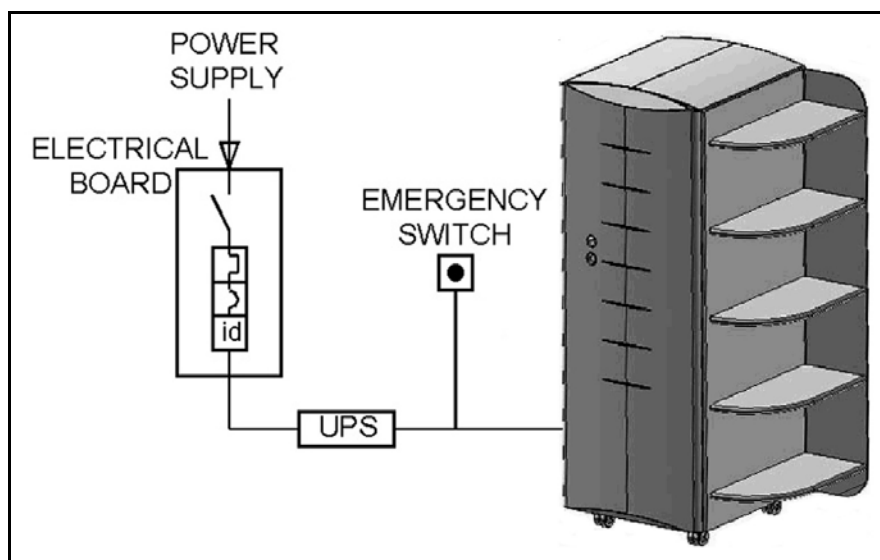
Fig. 10: Power distribution scheme



## Main Power Distribution Scheme

The room's power distribution scheme is shown in the following picture. All the parts that the electrical circuits need are displayed in this scheme.

Fig. 11: Room Power Distribution Scheme



## Uninterruptible Power Supply (UPS)

Line voltage stabilizers or UPS systems are required in countries with unreliable power supplies. As the magnet needs to be permanently heated to keep its temperature, it's highly recommended to use UPS in case the main power supply is not reliable.

One type of UPS has been tested and released for use with the system: ONEAC, model ON1300I-SN. It must be ordered from the UPS manufacturer.

## Power Supply for Air-conditioning

The power supply for the room's air-conditioner of the room must be selected according to the environmental conditions specified in Tab. 13.

## Power Supply for Lighting

Due to the special perforated steel sheet, external lighting may be sufficient. If it is not, internal lighting can be used. The filter panel provides dedicated filters for this purpose. Simultaneous use of the system's power supply with the lighting equipment is not allowed.

## Lighting Equipment

Due to the special perforated steel sheet, external lighting may be sufficient. If it is not, internal lighting can be used (not delivered). The filter plate provides a dedicated filter for this purpose. Simultaneous use of the system's power supply with the lighting equipment is not allowed.

If internal room lighting is required, the following items must be considered:

Incandescent lamps must be used, and the luminance should be about 200 lux, similar to that of general examination rooms.

Spotlights must not be used for the room illumination due to interference pattern with would be created by the pavilion.

Lights must not be directed towards the magnet to avoid local heating of the iron yoke and changes in the shim of the magnet.

---

**⚠ WARNING** Fluorescent lamps must not be used either internally or externally since they emit noise.

---

Light adjustments, if required, should be carried out by switching the number of lights required on or off.

---

**⚠ WARNING** Light-adjusting devices or thyristor systems must not be used either internally or externally because they emit noise.

---

## Internal Pavilion Lighting

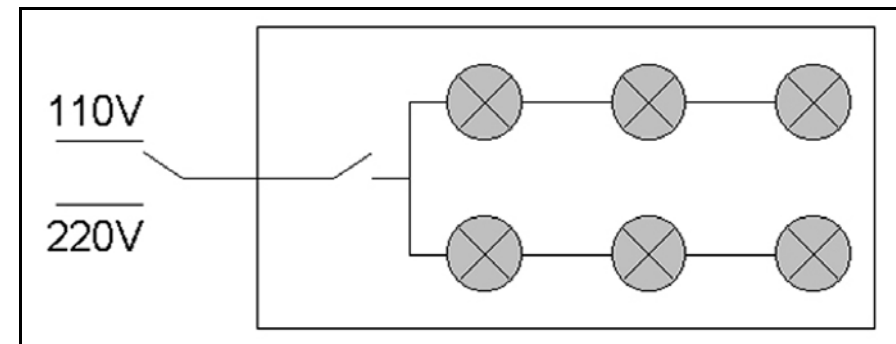
If internal room lighting is required, the following items must be considered. Wiring must be routed through the line filter or outlet line filter installed in a line filter box.

The line filter specifications are shown in Tab. 18:

Tab. 18: Line Filter Specification

| Line Filter Specification |          |
|---------------------------|----------|
| Max. voltage              | AC 250 V |
| Max. current              | 5 A      |

Fig. 12: Lighting Equipment Scheme



## Convenience Outlets

### Emergency Lamp and Smoke Sensor

An emergency lamp and smoke sensor must be shielded if installed inside the scan room. They must be powered through the Filter Panel using the auxiliary plug.

### Medical Tubing

The locations of medical tubing (oxygen and vacuum suction) will be determined in accordance with customer requirements.

Electrically insulated tubing (nylon, polyethylene, Teflon, etc.) must be used for applications that are routed through the RF-shielded walls. Metal tubing should not be used for these types of applications since the tubing acts as a RF antenna by introducing external noise into the pavilion.

Insulate the primary-side tubing from the RF-shielded room. An insulated tube and a copper pipe must be connected using a joint that is appropriate to both materials.

For the oxygen the dimensions are 10 - 12 mm (diameter) and 100 mm (length).

## Air-conditioning

Air-conditioning should be provided according to the environmental conditions of the room. (Refer to Tab. 13). No air-conditioning duct openings must be installed above the magnet or central control console.

---

** WARNING To prevent magnetic field drifts, the magnet must not be exposed to direct airflow from any of the air duct openings**

---

Because the system has a small magnetic fringe field, standard air-conditioner items (galvanized sheet iron) may be used for the air-conditioning duct and accessories in the scan room.

The air-conditioner for the scan room must operate constantly. The temperature of the scan room must be maintained within a range from 20 °C to 26 °C and with a stability of at least 3 °C/h, even when the MRI system is not in operation. Otherwise, the system cannot be operated.

# Connections

## Maximum Distance Among System Components

The maximum distance between the PC Unit and the Electronic Box is 5m. For higher distance please order the 17m cable set.

Tab. 19: Maximum Distance PC Unit – Electronic Box

| Maximum Distance PC Unit - Electronic Box |
|-------------------------------------------|
| 5 m (real cable length 8 m)               |

The cable ducts for the system wiring inside and outside the pavilion are part of the delivery.

The maximum distance between the Magnet and the Filter Panel present in the Electronic box is 1,5m.

Don't place the Electronic Unit closer to the Magnet to avoid possible interferences.

Tab. 20: Maximum Distance Magnet – Electronic Box

| Maximum distance Magnet – Electronic Box |
|------------------------------------------|
| 1,5 m (real cable length 2,7 m)          |

## Modem, Network and Camera

### Modem

The system includes an external analog modem for Remote Diagnostics purposes. A direct analog phone line should be provided close to the console to connect the modem. The length of the modem cable is 2.15 m.

Tab. 21: Length of Modem Cable

| Length of Modem Cable |
|-----------------------|
| 2,15 m                |

### Network

The system includes an internal network card for LAN connection. An appropriate outlet should be provided to connect to the LAN. The network connection cable is not provided with the system.

|        |                                                   |
|--------|---------------------------------------------------|
| NOTICE | The network cable is not provided with the system |
|--------|---------------------------------------------------|

### Camera

The system can be connected to laser cameras in three different ways: analog (cable), digital (cable and optical link) and DICOM (LAN). For detailed information, refer to the Installation Guide.

Please contact the customer to establish the type of camera connection.

|        |                                                                                                                                     |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|
| NOTICE | The Camera cable (either analog or digital) is not provided with the system, it must be provided by the camera company/manufacturer |
|--------|-------------------------------------------------------------------------------------------------------------------------------------|

|        |                                                              |
|--------|--------------------------------------------------------------|
| NOTICE | The network connection cable is not provided with the system |
|--------|--------------------------------------------------------------|

### Analog Connection

The maximum length of RG 59 (75  $\Omega$ ) cable for analog connection of the camera is 10 m, so you must provide the correct location for the camera when it is connected in this way.

The cable is not supplied with the system. Please contact the camera manufacturer for the required cable details.

Tab. 22: Maximum Cable Length for Analog Connection

| Maximum Cable Length for Analog Connection |
|--------------------------------------------|
| 10 m                                       |

## Digital Connection

The maximum length of cable for digital connection of the camera is 40 m. You must provide the correct location for the camera when it is connected in this way.

The cable is not supplied with the system. Please contact the camera manufacturer for the required cable details.

Tab. 23: Maximum Cable Length for Digital Connection

| Maximum Cable Length for Digital Connection |
|---------------------------------------------|
| 40 m                                        |

## Optical Link Connection

The maximum length of cable for optical link connection of the camera is 100 m. The Optical Link transmitter is connected to the digital output of the Print board.

Tab. 24: Maximum Cable Length for Optical Link Connection

| Maximum Cable Length for Optical Link Connection |
|--------------------------------------------------|
| 100 m                                            |

## DICOM Connection

The system uses the internal network card for DICOM connection. An appropriate outlet should be provided to connect to the LAN.

|        |                                                              |
|--------|--------------------------------------------------------------|
| NOTICE | The network connection cable is not provided with the system |
|--------|--------------------------------------------------------------|

## Cameras

The following models are tested and compatible with the system. For more technical details (e.g.: installation and setup) refer to the Installation Guide, Peripherals chapter.

### Kodak

#### Direct Connection

- DryView 8800/8700 Dual
- DryView 8700 Plus
- DryView 8700 Standard
- DryView 8800/8500 Dual
- DryView 8500 Plus
- DryView 8500 Standard
- DryView 8800/8300 Dual
- DryView 8300 Standard
- M969 HQ
- M969 HQT
- M959 XL
- DryView 8100

#### Dicom Connection

- DryView 8300 Standard
- 9410/DryView 8700 Plus (also 8700 Dual, HQ)
- 9410/DryView 8100

### Fuji

#### Dicom Connection

- Fuji Film FM-DPL
- Fuji Film Dry Pix 1000 - 3000
- Fuji Film Dry Pix 5000 - 7000

## Peripheral Devices

In case you want to install other equipment such as a personal computer inside the room, a minimum safety distance from the pavilion must be at least 3 m according to the CE rules.

Tab. 25: Minimum Distance of External Equipment (PC) from the Pavilion.

| Minimum Distance of External Equipment from the Pavilion |
|----------------------------------------------------------|
| 3 m                                                      |

## Effects of the Magnetic Field on Peripheral Devices

The fringe field (refer to the “Fringe field distribution” table) may effect the function of devices operated close to the magnet. To prevent interference, the magnetic flux density measured at the location of these devices must not exceed the values in the following table.

Tab. 26: Reference Values for Acceptable Magnetic Flux Densities  $B_{\max}$

| Device                                                                                            | $B_{\max}$ (mT) |
|---------------------------------------------------------------------------------------------------|-----------------|
| Small motors, watches, cameras, magnetic data carriers (short-term exposure)                      | 3               |
| Processor, magnetic disk drives, oscilloscope                                                     | 1               |
| B/W monitors, X RAY tubes, magnetic data carriers during storage, pacemakers, insulin pumps, etc. | 0.5             |
| Color monitors with active and passive shielding                                                  | 0.3             |
| CT systems                                                                                        | 0.2             |
| Colors monitor                                                                                    | 0.15            |
| X RAY image intensifier, gamma cameras                                                            | 0.05            |

## Part 3 Technical Data

### System Components

#### Dimensions and Weights

Tab. 27: Dimension of system components

| Dimension of system components |            |             |             |             |
|--------------------------------|------------|-------------|-------------|-------------|
| Part                           | Width (mm) | Length (mm) | Height (mm) | Weight (kg) |
| Magnet and Patient Table       | 1244       | 2495        | 1564        | 2100        |
| Electronic Box                 | 526*       | 632         | 1467        | 210         |
| Operating Table Standard       | 1080       | 800         | 740         | 30          |
| Operating Table High           | 1100       | 900         | 800         | 35          |
| TFT Monitor 18"                | 399        | 404         | 404-504     | 8           |
| PC Unit                        | 260        | 440         | 430         | 15          |
| Pavilion (aluminum)            | 4000       | 3650        | 2350        | 500         |

\* 793 mm considering also the lateral holders

### Dimensions of Magnet & Patient Table

Tab. 28: Magnet Dimension without the Base

| Magnet Dimensions (without Base) and Weight  |
|----------------------------------------------|
| 650 mm (W) x 850 mm (L) x 790 mm (H) 1800 kg |

Fig. 13: Dimension of Magnet Unit and Patient Table

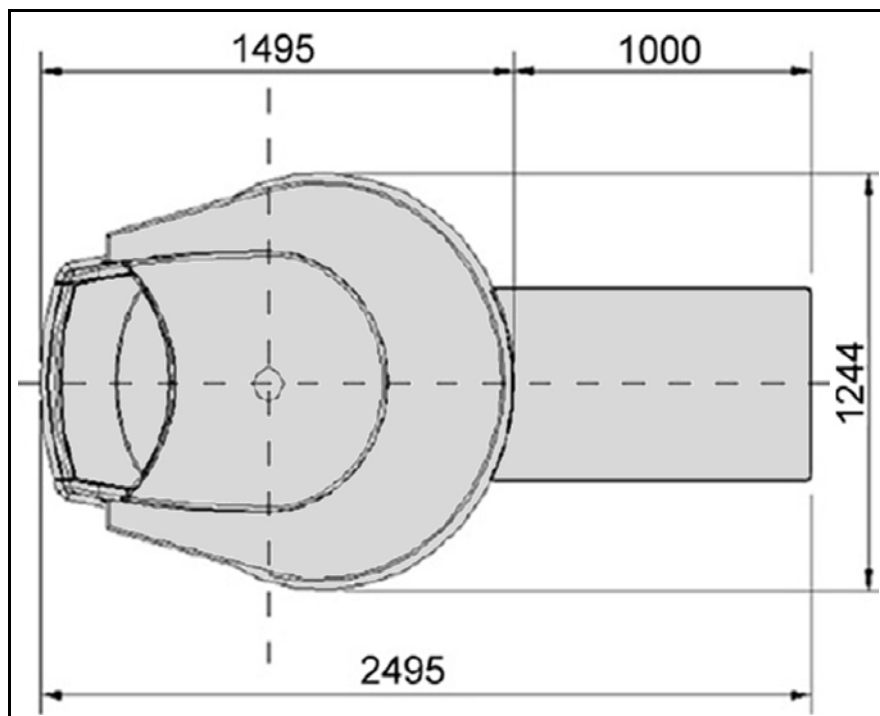
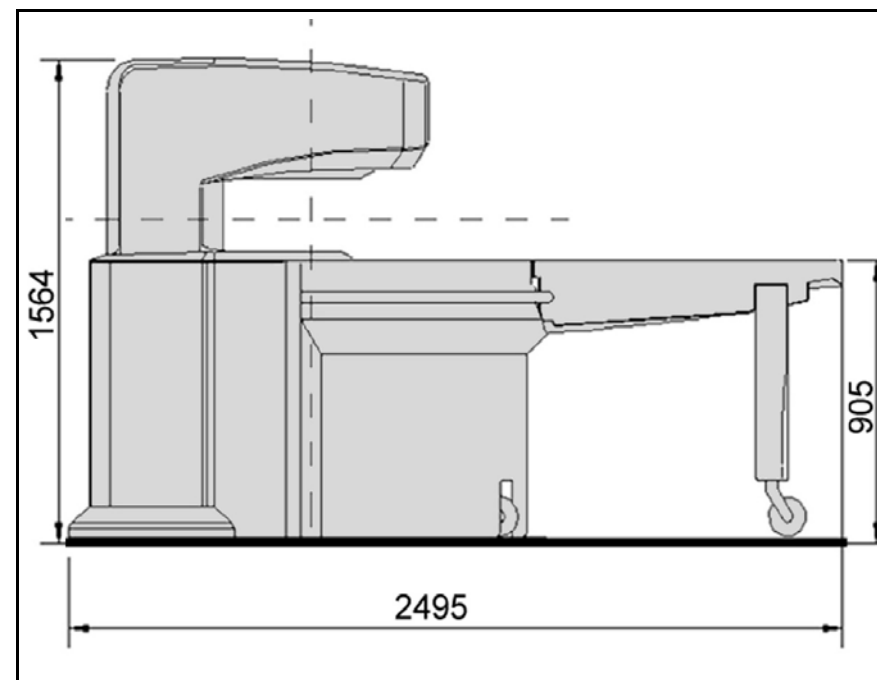


Fig. 14: Dimension of Magnet Unit and Patient Table



# Magnet Fringe Field

Fig. 15: Magnet Fringe Field Distribution

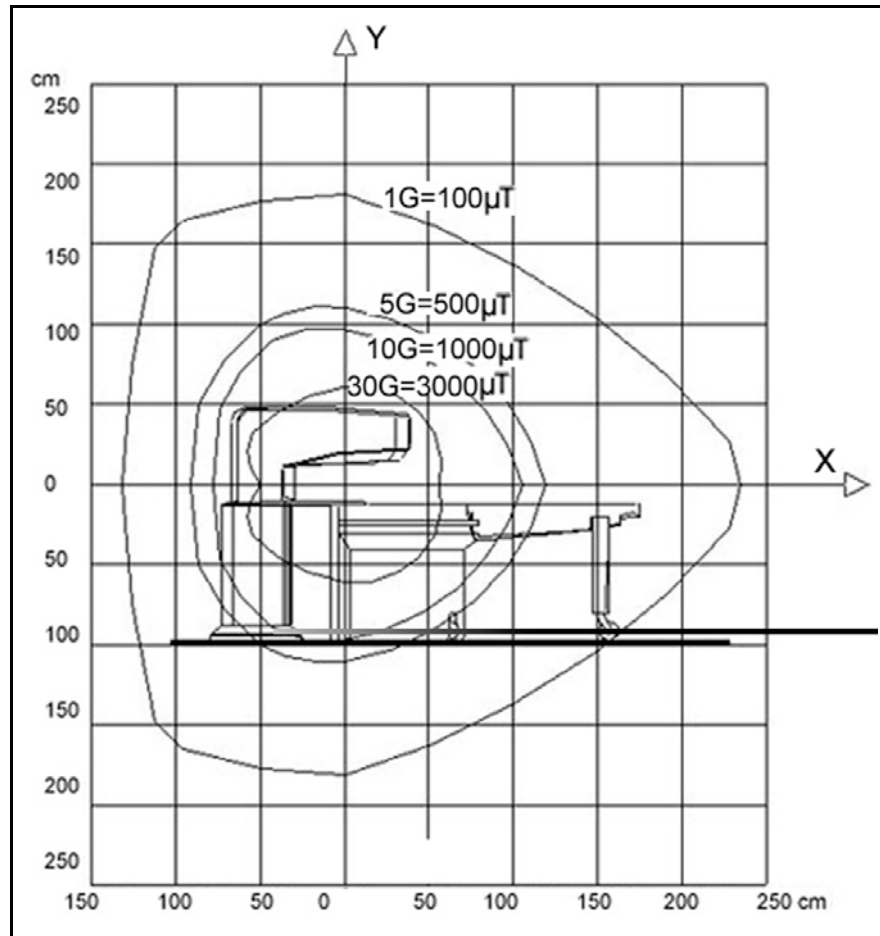
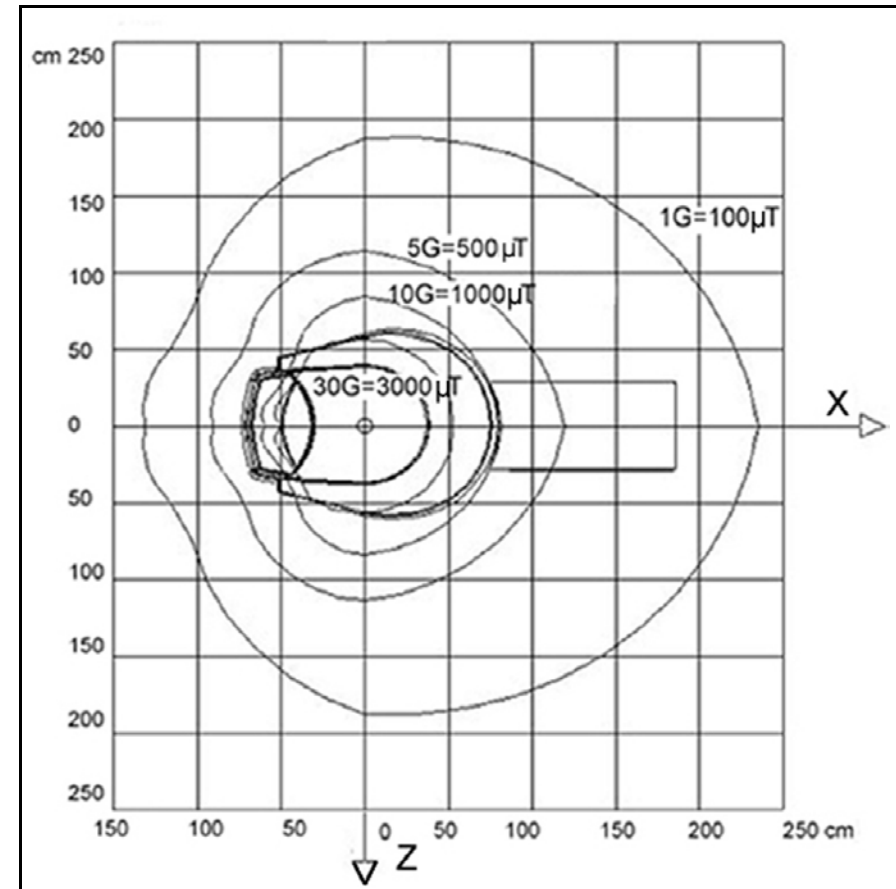


Fig. 16: Magnet Fringe Field Distribution



Tab. 29: Fringe Field Distribution

| Fringe Field |        | Distance from the Magnetic Center in Direction of |            |            |
|--------------|--------|---------------------------------------------------|------------|------------|
| Gauss        | mTesla | X axis (m)                                        | Y axis (m) | Z axis (m) |
| 30           | 3      | 0.5                                               | 0.6        | 0.6        |
| 10           | 1      | 0.8                                               | 1          | 0.8        |
| 5            | 0.5    | 1.2                                               | 1.1        | 1.2        |
| 1            | 0.1    | 2.3                                               | 1.7        | 1.8        |

Fig. 17: Magnet Fringe Field Distribution

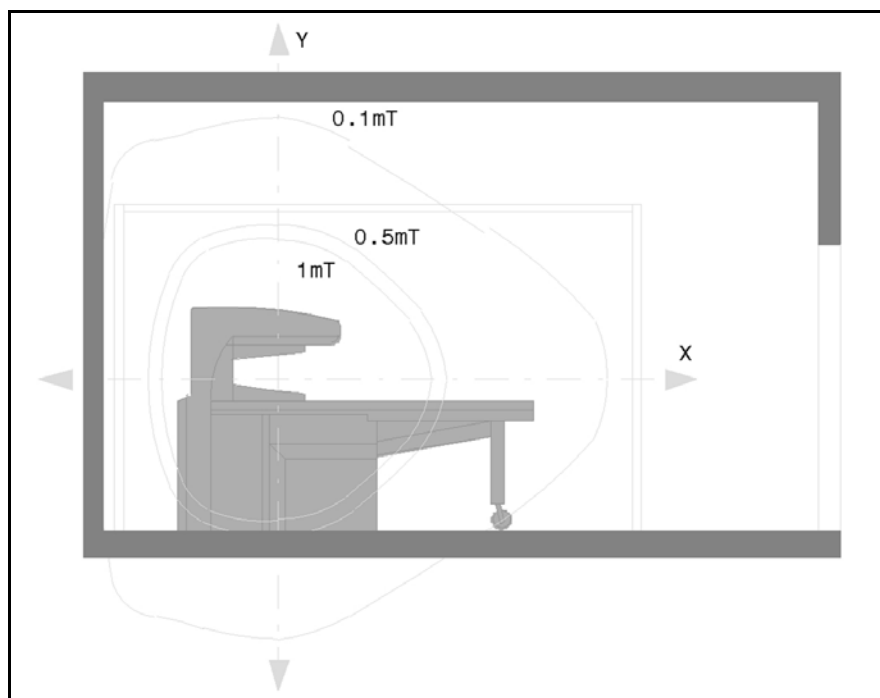
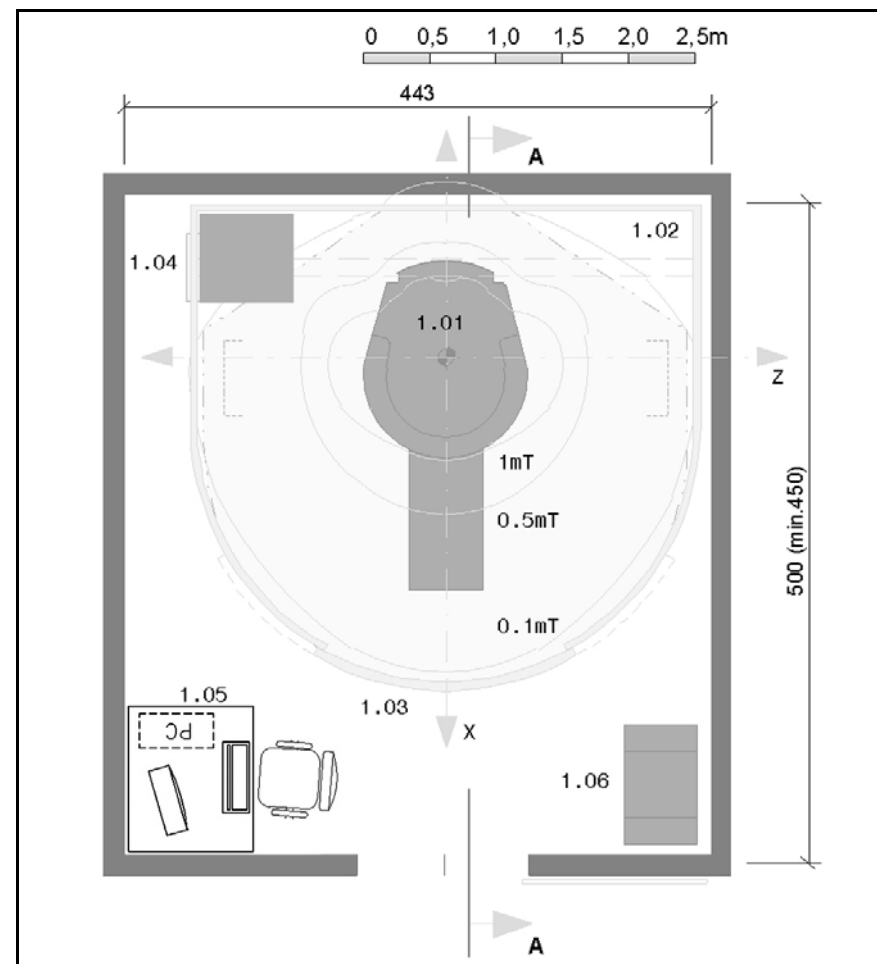
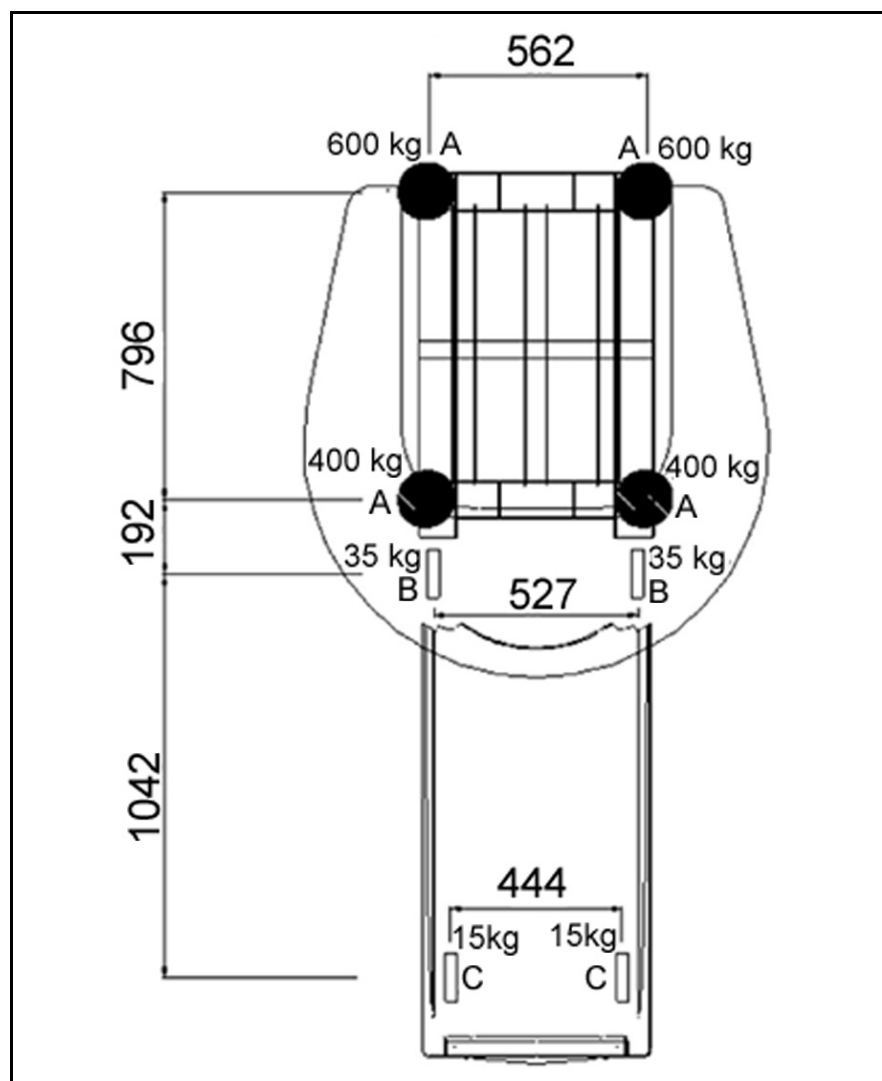


Fig. 18: Magnet Fringe Field Distribution



## Load Distribution

Fig. 19: Load Distribution



## Electronic Box Dimensions

Fig. 20: Electronic Box Dimension

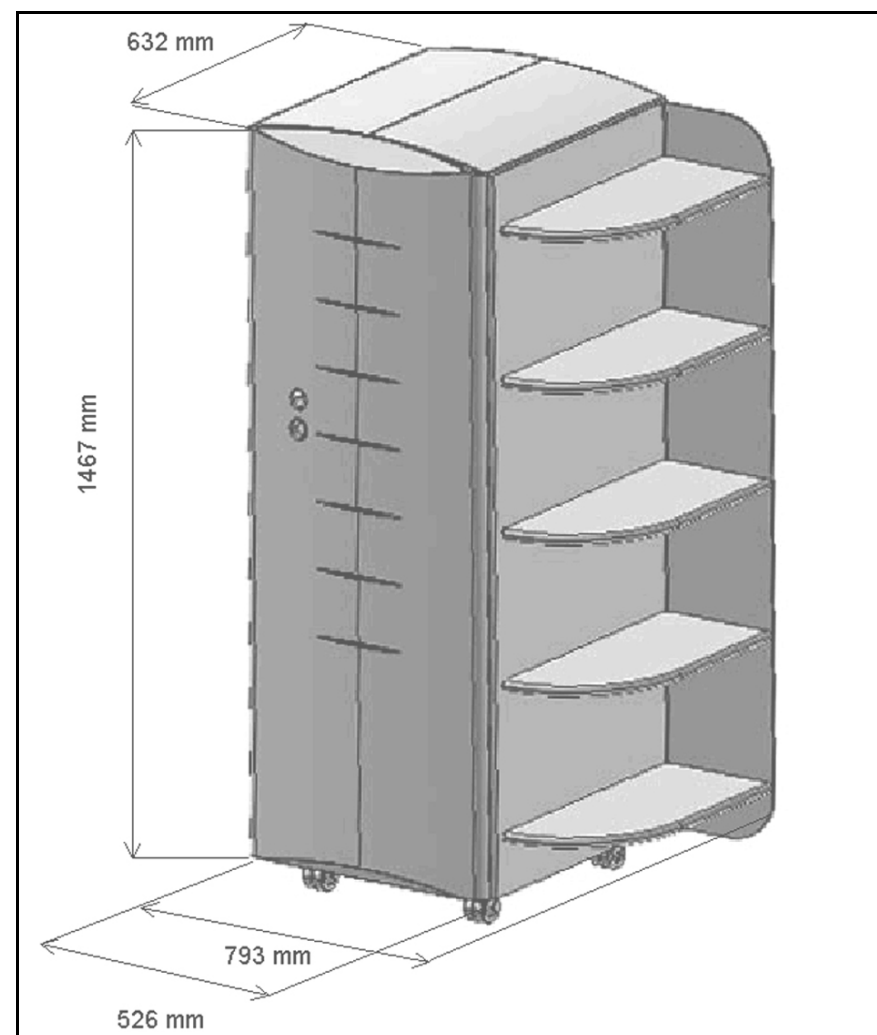
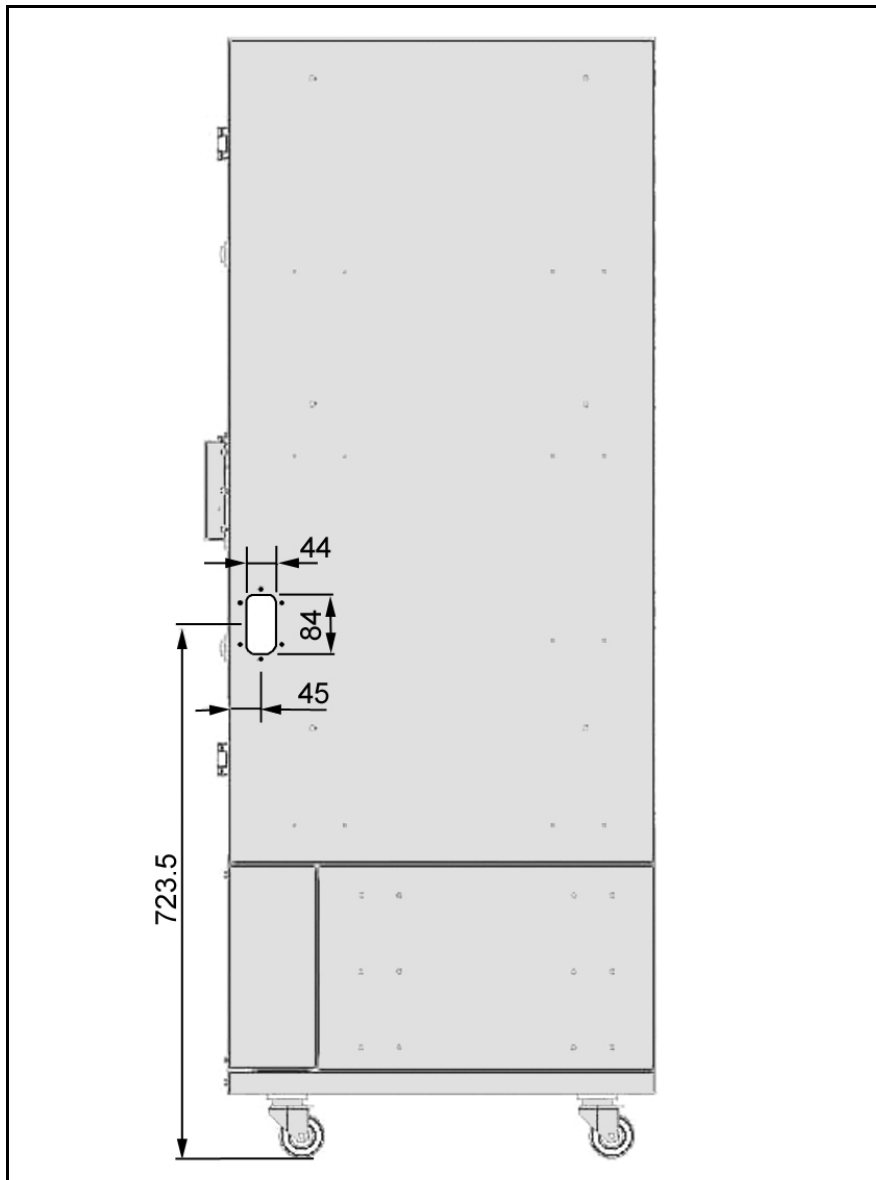


Fig. 21: Position of the Cable Passing Hole (lateral view)



## Wave Guide Dimensions

Fig. 22: Wave Guide

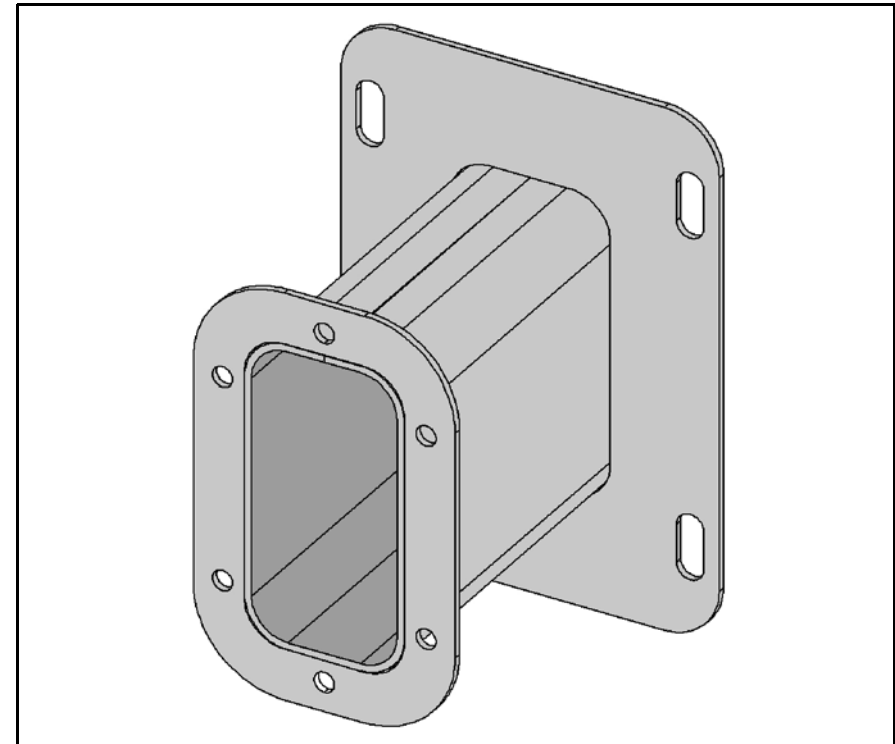


Fig. 23: Wave Guide Electronic Box Side

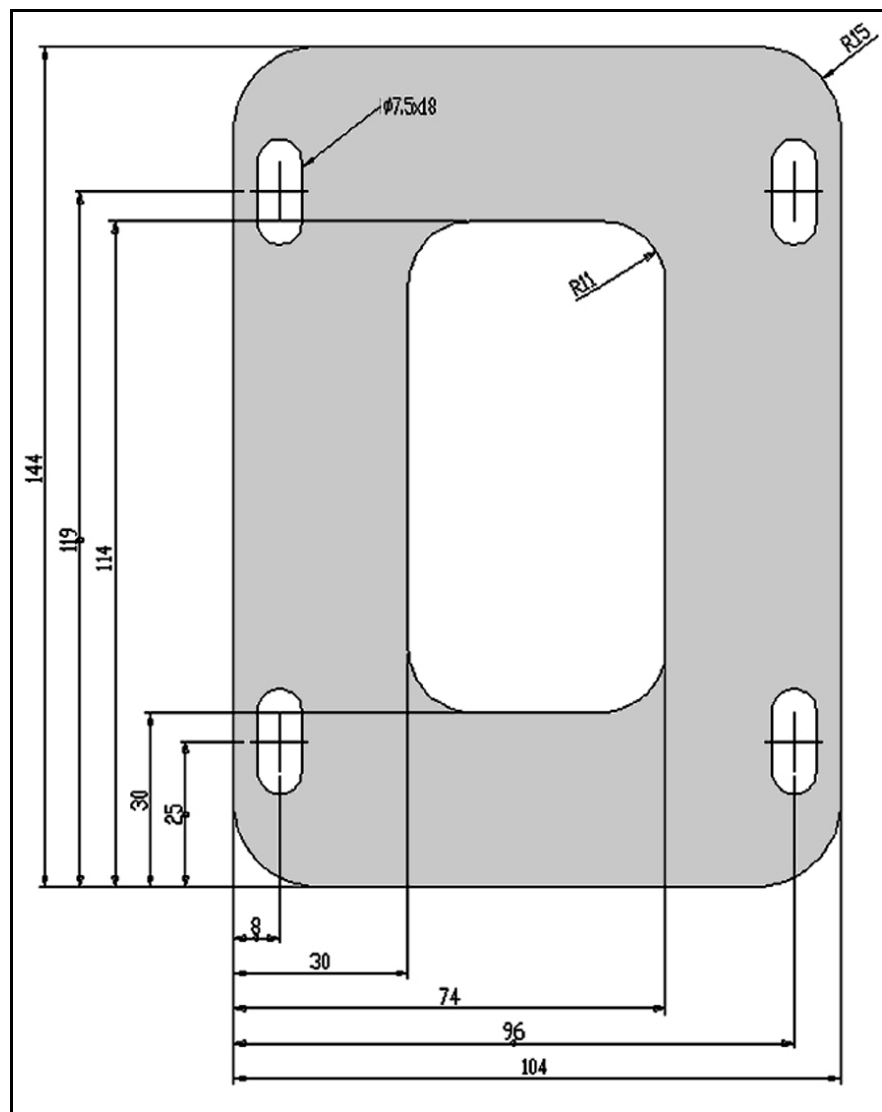
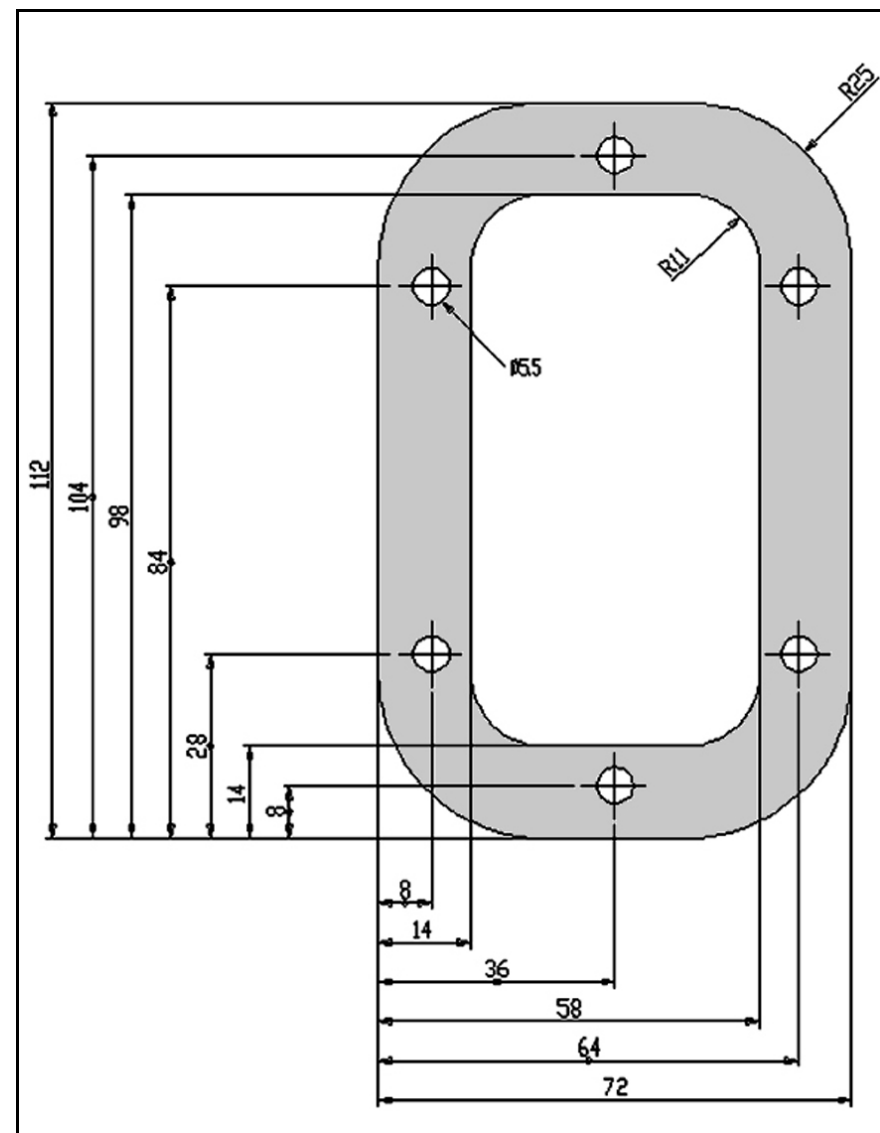


Fig. 24: Wave Guide RF Cage Side



## Heat Dissipation

The system (without the laser camera or any other equipment) produces a maximum heat of 400 W.

Tab. 30: Heat Dissipation of System Components

| Heat Dissipation of System Components |       |
|---------------------------------------|-------|
| Magnet unit and console               | 400 W |

## Acoustic Noise

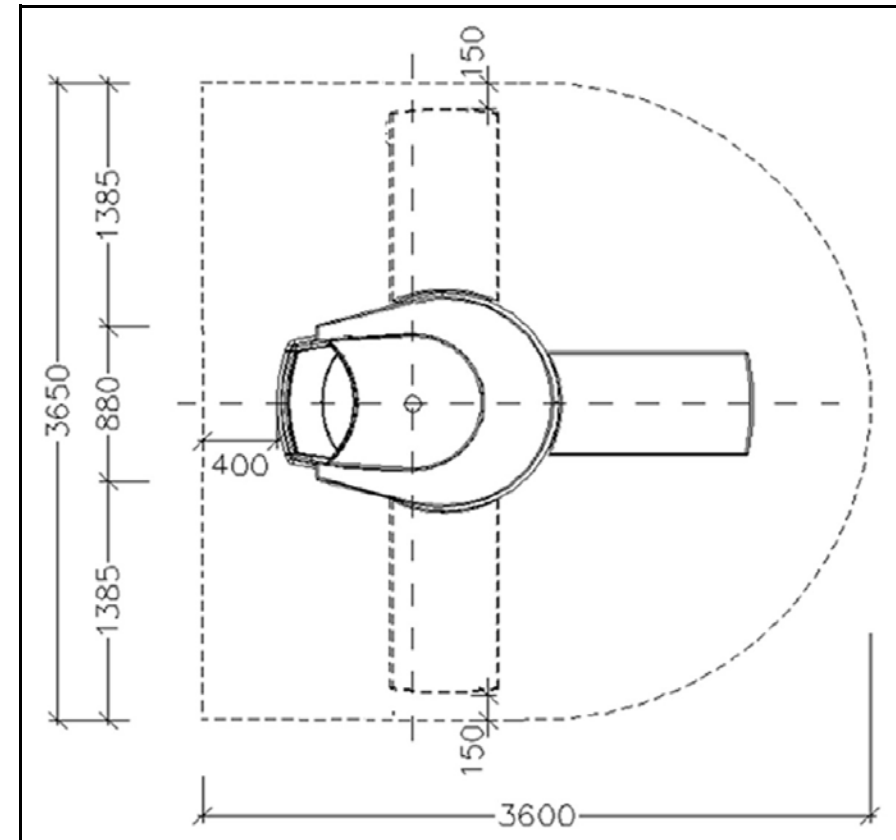
The system console generates a noise of 55 dB (A) measured in the operator position; in other words, in front of the monitor.

Tab. 31: Acoustic Noise

| Acoustic Noise |
|----------------|
| 55 dB (A)      |

## Service Area

Fig. 25: Minimum Required Service Area



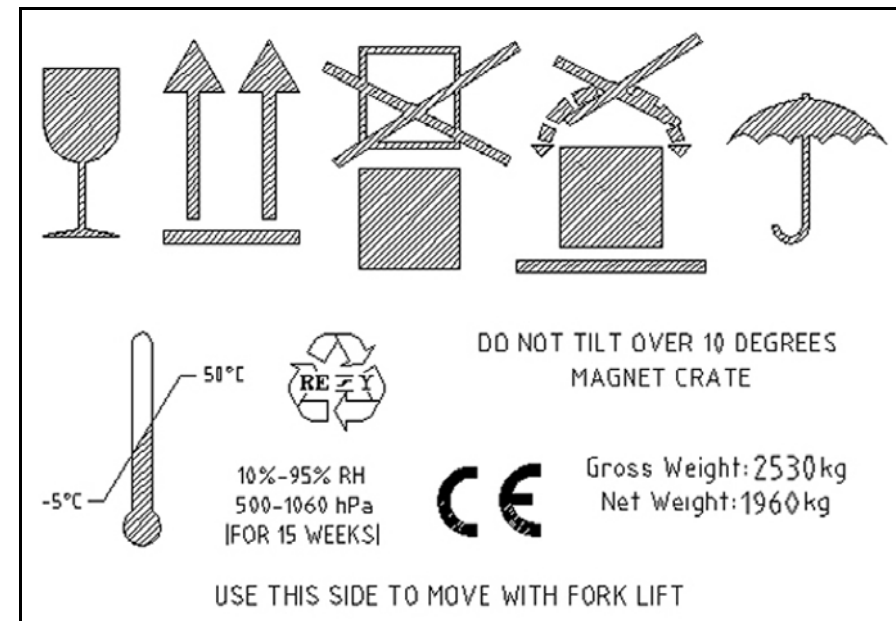
## Part 4 Transport & Storage

### Crates Dimensions

Tab. 32: Crates Dimensions

| Content         | Crate weight | Content weight | Size (LxWxH)       |
|-----------------|--------------|----------------|--------------------|
| Magnet unit     | 570 kg       | 1960 kg        | 171 x 186 x 182 cm |
| Covers          | 127 kg       | 60 kg          | 140 x 90 x 185 cm  |
| Electronic Box  | 110 kg       | 130 kg         | 126 x 92 x 190 cm  |
| Bed and Monitor | 95 kg        | 128 kg         | 147 x 76 x 125 cm  |

Fig. 26: Magnet Crate Label



## Transport Conditions

### Temperature

When transporting and storing the magnet unit, never exceed the temperature range specified in the following table. Otherwise, the magnet will be damaged.

Tab. 33: Temperature Range during Transport and Storage of the Magnet

| Temperature Range During Transportation and Storage |       |
|-----------------------------------------------------|-------|
| Minimum temperature                                 | -5 °C |
| Maximum temperature                                 | 50 °C |

### Humidity

When transporting and storing the magnet unit, never exceed the humidity range specified in the following table. Otherwise, the magnet will be damaged.

Tab. 34: Humidity Range during Transport and Storage of the Magnet

| Humidity Range During Transportation and Storage |          |
|--------------------------------------------------|----------|
| Humidity range                                   | 10 ÷ 95% |

### Pressure

When transporting and storing the magnet unit, never exceed the pressure range specified in the following table. Otherwise, the magnet will be damaged.

Tab. 35: Pressure Range during Transport and Storage of the Magnet

| Pressure Range During Transportation and Storage |          |
|--------------------------------------------------|----------|
| Minimum pressure                                 | 500 hPa  |
| Maximum pressure                                 | 1060 hPa |

### Maximum Tilt

If you have to use a ramp when transporting and storing the magnet unit, never exceed a maximum tilt of 10%. Otherwise, the magnet will be damaged.

Tab. 36: Maximum Tilt during Transport and Storage of the Magnet

| Maximum Tilt During Transportation and Storage |     |
|------------------------------------------------|-----|
| Maximum tilt                                   | 10% |

# Storage

If the upper part of the Magnet crate is removed for storage or transport the following specification illustrated by pictures must be met.

Tab. 37: Pallet Dimensions

| Platform Size             |
|---------------------------|
| L 143 x W 102 x H 16.5 cm |

Fig. 27: Transport and Storage specifications (Magnet and Pallet top view)

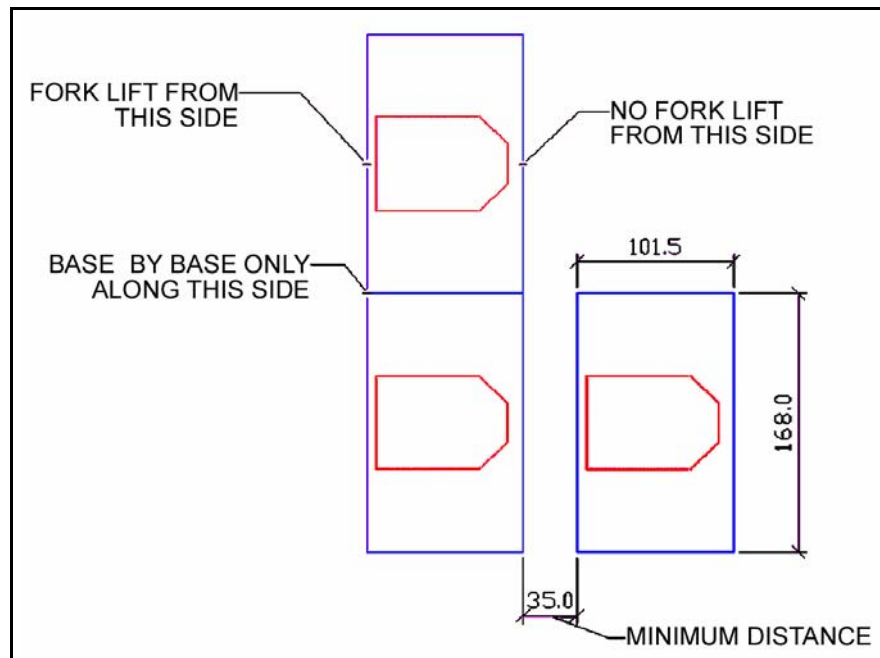
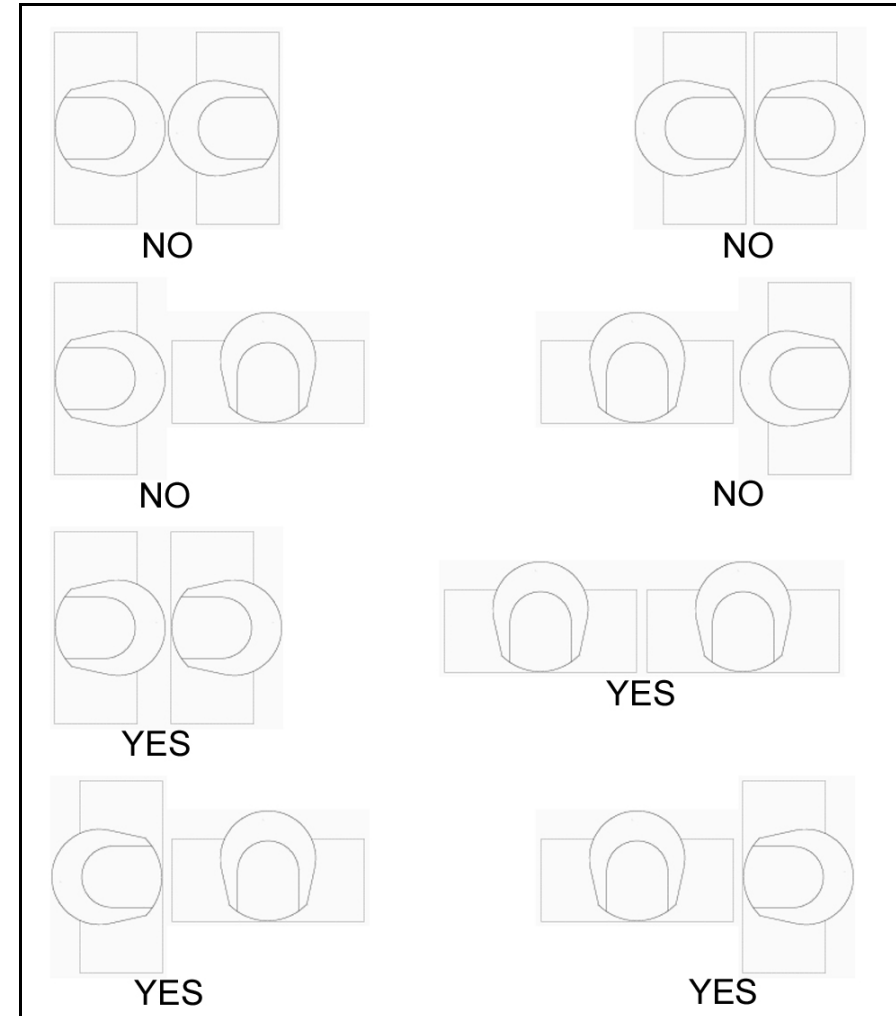


Fig. 28: Transport and Storage permitted and not permitted layouts (Magnet and Pallet top view)



## Installation device

A suitable carriage is used to transport the magnet unit (for more details refer to the Installation Guide).

Fig. 29: Installation Guide



A specially designed transportation device is used to site the magnet.

Tab. 38: Carriage Device Weight

| Carriage Device Weight                                                                                |
|-------------------------------------------------------------------------------------------------------|
| 25.5 kg (main part) + 50 kg (two metallic structure)<br>+ 30 kg (four wheels) + 6 kg (hydraulic pump) |

Fig. 30: Magnet Transportation Device

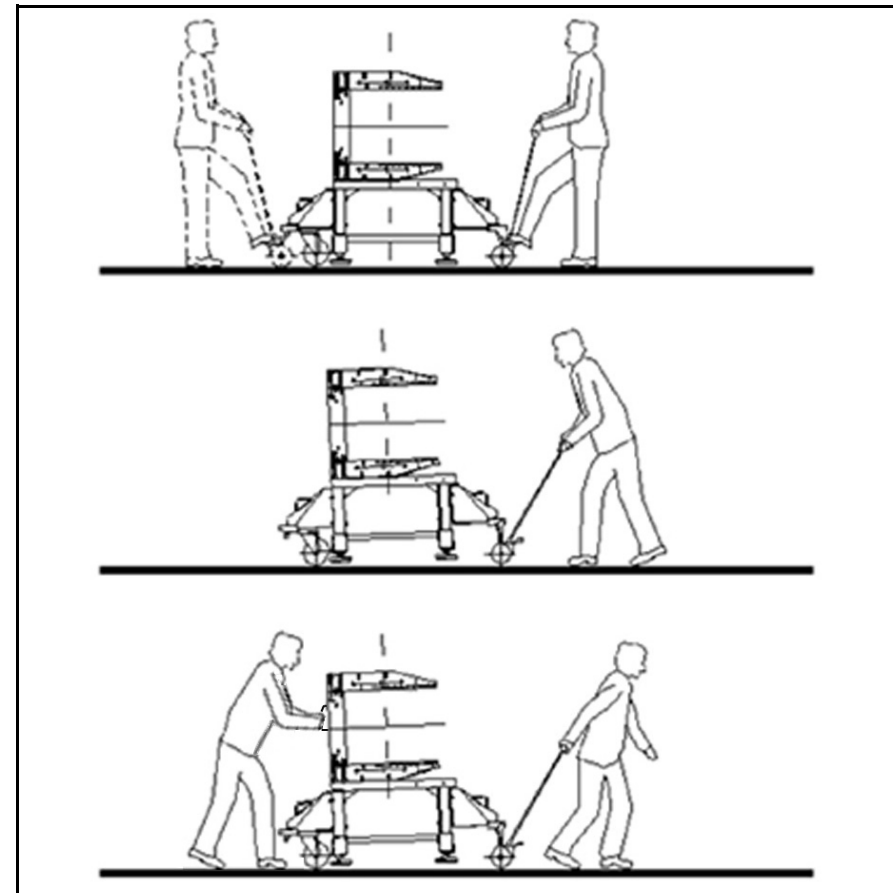
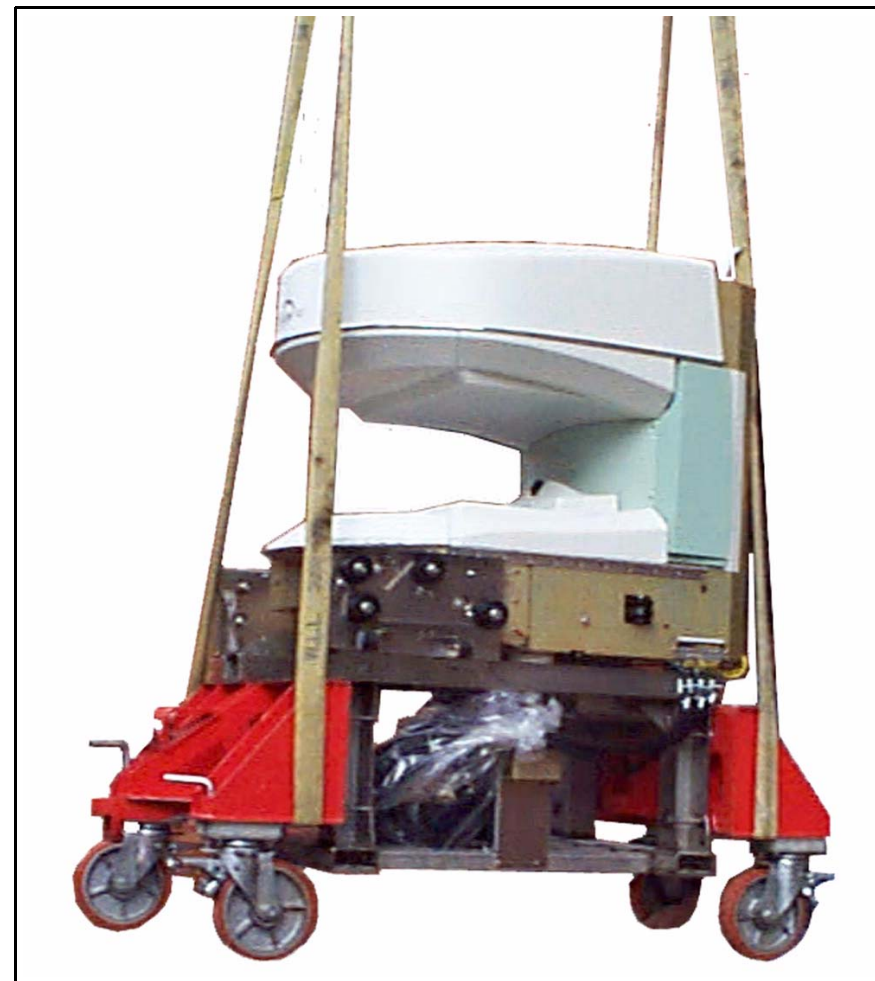


Fig. 31: Magnet with the Installation Kit placed



**⚠ WARNING** The above picture is just an example: for safety reason two front wheels must be installed as well with the guide

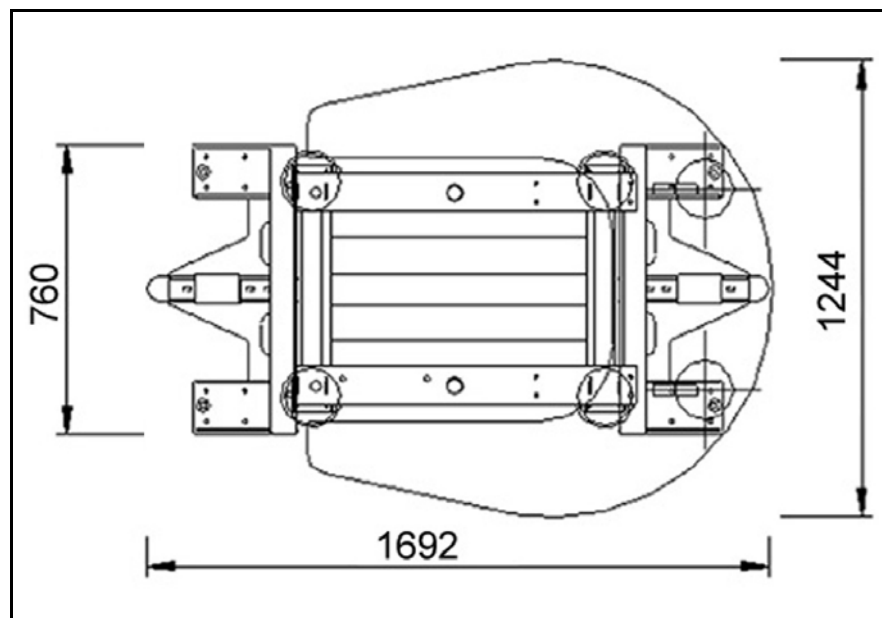
Fig. 32: How to correctly lift the Magnet using a crane



## Passage Dimensions

The standard passage dimension is 1300mm.

Fig. 33: Magnet and Installation Tools dimensions



Tab. 1: Minimum Passage Dimension

| Standard Passage Dimensions |         |
|-----------------------------|---------|
| Standard Passage Dimension  | 1300 mm |

## Minimum Passage Dimensions

In order to reduce the Magnet passage dimension to the minimum the semi-circular Patient Table can be removed together with the Magnet Brackets. In this case the minimum passage dimension decreases to 850mm.

Removing also the Bracket Plates you can reduce the minimum passage dimension to 800mm. If you do this you must mark the Bracket Plates positions in order to mount them back exactly in the same position as they were.

In both cases (removing the patient table or even the Bracket plates) if to enter in the Installation room you have to steer the Magnet you must take care that the corridor width has to permit the steering. In the worst case with a door opening of 800mm you need a corridor width of 1700mm.

Fig. 34: Right Bracket Plate

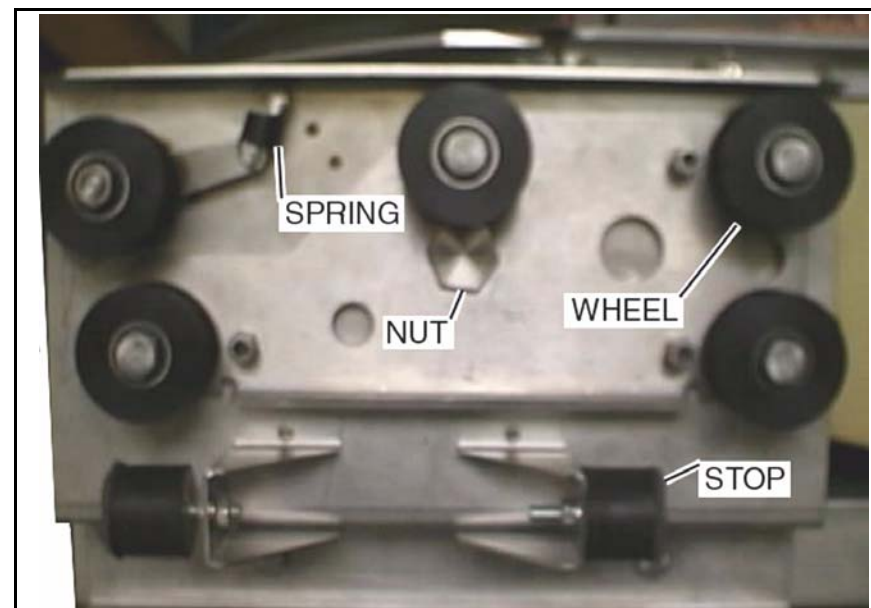


Fig. 35: Right Bracket Plate Removed



**⚠ WARNING** If the bracket plates are mounted back in different position than they were, the Gantry centre won't be any more in the Magnet centre!

Tab. 1: Minimum Passage Dimension

| Minimum Passage Dimensions       |        |
|----------------------------------|--------|
| Without Patient table & Brackets | 850 mm |
| Without Bracket Plates           | 800 mm |

---

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# Part 5 Annex

---

## Annex 1

### Recommended Planning Actions

This is a list of recommended actions to be taken while planning a system installation:

1. Check the room size against the minimum space required for siting a system
2. Check whether the floor has to be reinforced to sustain the total load of a system
3. Make sure that the building vibration requirements are met.
4. Check whether the fringe field of the magnet requires an external room shielding
5. Ensure that the minimum passage dimension required for carrying in the system as well as the minimum weight of the system components do not represent a problem for doors, floors, elevator, etc.
6. Fill in the Preliminary Site Survey Report and send it to your site survey specialist
7. Arrange for a site measurement with your site survey specialist.
8. Check whether the floor leveling requirements are met
9. Check whether the air-conditioning system fulfills the room temperature requirements
10. Check whether the power, grounding and lighting requirements are met
11. Make sure that modem, network and camera connections are available
12. Find out whether convenience outlets (emergency lamp, smoke sensor, medical tubing) are to be installed
13. Define the room layout (position of modular shielding pavilion, doors and console). Allow at least 0.2 m distance against the wall for the filter panel and remember that the console must be placed within a distance range of 6 m from the filter panel

## Annex 2

### Preliminary Site Survey

Preliminary Site Survey Report must be filled in during the sales phase of the project and then returned to your site survey specialist.

### Situation Report

The Situation Report is a brief description of the location of the proposed site. Check the rooms surrounding the location with respect to all six directions and enter the results into the Tab: Distance check:  
- Where are...?.

### Sources of Interference

The Distance Check is a systematic analysis of existing sources of magnetic interference and the distance between these sources and the center of the magnet. Sources of magnetic interference may be associated with one or more of the following:

- a) AC 50 Hz or 60 Hz: high current cables, etc.
- b) AC 50 Hz or 60 Hz: transformers, motors, etc.
- c) AC 16.6 Hz or 25 Hz: power cables used for trains
- d) Moving iron objects: cars, trucks, elevators, patient beds, equipment, etc.
- e) Switched DC: tram, subway, other MR-systems
- f) RF noise: antennas, fans (even not magnetic), monitors, engines, transformers, ups, phone switch boards, medical systems, etc.

---

NOTICE      Fans can create AC noise even if they are not magnetic.

---

In addition, place a check in the corresponding box to indicate the distance range for any sources of interference. The mark(s) in the

column with the lowest class number will determine the preliminary site status:

- Class 1: Very critical site, installation probably impossible
- Class 2: Critical site, installation probably possible but additional shielding required
- Class 3: Normal site, installation possible but additional shielding may be required
- Class 4: Uncritical site, installation probably possible, additional shielding not required

### Remarks

Use this section to enter any comments you consider important regarding installing the system at that location.

## Checks and Actions

PLEASE COMPLETE THE FOLLOWING FORM MARKING OFF ALL THE PERFORMED ITEMS AND E-MAIL/FAX BACK TO ESAOTE.

Fig. 35: Check and Actions flowcharts

| Pre installation performed by customer's contractor (mark off performed items)                                                                                                                                                    |                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>This form is filled by _____<br/>           Company _____ Date _____<br/>           System Type _____</p>                                                                                                                      | <p><input type="checkbox"/> Did you check the Site Accessibility (door, corridor, window and stair dimensions, elevator max load, etc)?</p>               |
| <p><input type="checkbox"/> Did you received (or downloaded) and read the Service Documentation?</p>                                                                                                                              | <p><input type="checkbox"/> Did you check if power line, dedicated ground and two pole separated switch are present in the installation room?</p>         |
| <p><input type="checkbox"/> Please write down the Customer data<br/>           Site Name _____<br/>           Address _____<br/>           Phone _____<br/>           Contact _____</p>                                           | <p><input type="checkbox"/> Did you check if the Air Conditioning is present in the installation room?<br/>           Max Temp Deviation 3°C per hour</p> |
| <p><input type="checkbox"/> Did you check the Site Dimensions against the specification (Site Planning Guide)?</p>                                                                                                                | <p><input type="checkbox"/> Did you install the RF Cage?</p>                                                                                              |
| <p><input type="checkbox"/> Did you perform the Site Evaluation (RF, Magnetic and Vibration measurements)?</p>                                                                                                                    | <p><input type="checkbox"/> Did you get the System out of Customs?</p>                                                                                    |
| <p><input type="checkbox"/> Did you check if civil works are necessary?<br/>               <input type="checkbox"/> NO                      <input type="checkbox"/> YES<br/>           If YES, are they finished? Date _____</p> | <p><input type="checkbox"/> Did you contact the forwarder?</p>                                                                                            |
|                                                                                                                                                                                                                                   | <p><input type="checkbox"/> Did you advise the ESAOTE Service Dep.?</p>                                                                                   |
|                                                                                                                                                                                                                                   | <p><input type="checkbox"/> Did you receive the Installation Tools and the magnetic compensation kit?</p>                                                 |
|                                                                                                                                                                                                                                   | <p>NOTE: _____<br/>           _____<br/>           _____</p>                                                                                              |

## General Information

Tab. 2: General Information

|                       |                                |                                    |                                    |
|-----------------------|--------------------------------|------------------------------------|------------------------------------|
| Sales representative: |                                |                                    |                                    |
| Project manager:      |                                |                                    |                                    |
| Sales status:         | sold: <input type="checkbox"/> | probable: <input type="checkbox"/> | possible: <input type="checkbox"/> |
| Customer name:        |                                |                                    |                                    |
| City:                 |                                |                                    |                                    |
| Report issued by:     |                                |                                    |                                    |
| Date and signature:   |                                |                                    |                                    |

## Situation Report

Tab. 3: Situation Report - What is located where...?

|                        |    |  |
|------------------------|----|--|
| Behind the magnet      | +X |  |
| In front of the magnet | -X |  |
| Above the magnet       | +Y |  |
| Below the magnet       | -Y |  |
| Right of the magnet    | +Z |  |
| Left of the magnet     | -Z |  |

## Distance Check

Tab. 4: Distance check: - Where are...?

| Sources of interference                   | Class 1               |                          | Class 2     |                          | Class 3      |                          | Class 4 |                          | X                        | Y                        | Z                        |
|-------------------------------------------|-----------------------|--------------------------|-------------|--------------------------|--------------|--------------------------|---------|--------------------------|--------------------------|--------------------------|--------------------------|
| a) AC 50 Hz or 60 Hz: High current cables | <1 m                  | <input type="checkbox"/> | 1 to 5 m    | <input type="checkbox"/> | 5 to 10 m    | <input type="checkbox"/> | >10 m   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) AC 50 Hz or 60 Hz: Transformers        | <4 m                  | <input type="checkbox"/> | 4 to 7 m    | <input type="checkbox"/> | 7 to 10 m    | <input type="checkbox"/> | >10 m   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) AC 16.6 Hz or other train frequencies  | <20 m                 | <input type="checkbox"/> | 20 to 100 m | <input type="checkbox"/> | 100 to 250 m | <input type="checkbox"/> | >250 m  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Moving iron (dynamic interference)     |                       |                          |             |                          |              |                          |         |                          |                          |                          |                          |
| – <50 kg: Wheel chair, etc.               | <2 m                  | <input type="checkbox"/> | 2 to 4 m    | <input type="checkbox"/> | 4 to 5 m     | <input type="checkbox"/> | >5 m    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| – 200 kg: Patient bed, etc.               | <3 m                  | <input type="checkbox"/> | 3 to 6 m    | <input type="checkbox"/> | 6 to 8 m     | <input type="checkbox"/> | >8 m    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| – 900 kg: Car, small elevator, etc.       | <5 m                  | <input type="checkbox"/> | 5 to 9 m    | <input type="checkbox"/> | 9 to 12 m    | <input type="checkbox"/> | >12 m   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| – >4500 kg: Truck, large elevator, etc.   | <6 m                  | <input type="checkbox"/> | 6 to 11 m   | <input type="checkbox"/> | 11 to 17 m   | <input type="checkbox"/> | >17 m   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) DC cables from tram or subway          | <15 m                 | <input type="checkbox"/> | 15 to 40 m  | <input type="checkbox"/> | 40 to 250 m  | <input type="checkbox"/> | >250 m  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f) Iron plates in floor                   | >30 kg/m <sup>2</sup> | <input type="checkbox"/> |             |                          |              |                          |         |                          |                          |                          |                          |

## Remarks

Tab. 5: Remarks

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|  |

## Annex 3

### Planning summary

| Minimum space requirements |
|----------------------------|
| 4.0 m x 4.5 m x 2.4 m      |

| Floor load requirements |
|-------------------------|
| 3880 kg                 |

| Floor leveling requirements |
|-----------------------------|
| 5 mm / 3 m                  |

| Maximum RF noise requirements |
|-------------------------------|
| 40 dB $\mu$ V/m               |

| Maximum values without EFI |                     |
|----------------------------|---------------------|
| DC (<5 Hz)                 | 30 nT pkpk (0.3 mG) |
| AC (16-20 Hz)              | 6 nT pkpk (0.06 mG) |
| AC (50-60 Hz)              | 20 nT pkpk (0.2 mG) |

| Maximum values with EFI |                      |
|-------------------------|----------------------|
| DC (<5 Hz)              | 3000 nT pkpk (30 mG) |
| AC (16-20 Hz)           | 600 nT pkpk (6 mG)   |
| AC (50-60 Hz)           | 1000 nT pkpk (10 mG) |

| Sources of interference                  | Minimum Distance      |
|------------------------------------------|-----------------------|
| a) AC 50 Hz or 60 Hz                     | >10 m                 |
| b) AC 50 Hz or 60 Hz: Transformers       | >10 m                 |
| c) AC 16.6 Hz or other train frequencies | >400 m                |
| d) Moving iron                           |                       |
| – <50 kg: Wheel chair, etc.              | – Refer to Tab.8      |
| – 200 kg: Patient bed, etc.              | – Refer to Tab.8      |
| – 900 kg: Car, small elevator, etc.      | – Refer to Tab.8      |
| – >4500 kg: Truck, large elevator, etc.  | – Refer to Tab.8      |
| – >20000 kg: big Truck, Excavator, etc.  | – Refer to Tab.8      |
| e) DC cables from trams or subway        | >50 m                 |
| f) Iron plates in floor                  | >30 kg/m <sup>2</sup> |

| Environmental requirements |                       |
|----------------------------|-----------------------|
| Temperature range          | 20-26 °C / 68-78.8 °F |
| Temperature stability      | 3 °C/h / 5.4 °F/h     |
| Humidity range             | 45 - 80%              |

| Building vibration requirements |           |
|---------------------------------|-----------|
| a <sub>max</sub>                | -70 dB(g) |

| Minimum Passage Dimensions             |         |
|----------------------------------------|---------|
| Standard Passage                       | 1300 mm |
| Minimum Passage without Patient Table  | 850 mm  |
| Minimum Passage without Bracket Plates | 800 mm  |

| Anti-Vibration Feet Warning Levels |                 |
|------------------------------------|-----------------|
| Normal Feet                        | from 9 to 13 Hz |
| Feet With Springs                  | from 4 to 7 Hz  |

| Power Supply Cable Features |                     |
|-----------------------------|---------------------|
| Section                     | 1.5 mm <sup>2</sup> |
| Length                      | 10 m                |

| Maximum Distance PC Unit - Electronic Box |
|-------------------------------------------|
| 5 m (real cable length 8 m)               |

| Maximum distance Magnet – Electronic Box |
|------------------------------------------|
| 1,5 m (real cable length 4 m)            |

| Maximum length of modem cable                    |
|--------------------------------------------------|
| 2.15 m                                           |
| Maximum cable length for analog connection       |
| 10 m                                             |
| Maximum cable length for digital connection      |
| 40 m                                             |
| Maximum cable length for optical link connection |
| 100 m                                            |

| Reference value for mag flux densities                                                            | B <sub>max</sub> /mT |
|---------------------------------------------------------------------------------------------------|----------------------|
| Small motors, watches, cameras, magnetic data carriers (short-term exposure)                      | 3                    |
| Processor, magnetic disk drives, oscilloscope                                                     | 1                    |
| B/W monitors, X RAY tubes, magnetic data carriers during storage, pacemakers, insulin pumps, etc. | 0,5                  |
| Color monitors with active and passive shielding                                                  | 0,3                  |
| CT systems                                                                                        | 0,2                  |
| Colors monitor                                                                                    | 0,15                 |
| X RAY image intensifier, gamma cameras                                                            | 0,05                 |

| Minimum Door Dimensions                       |        |
|-----------------------------------------------|--------|
| Minimum Door Dimension                        | 850 mm |
| Minimum Door Dimension without bracket plates | 800 mm |

| Power requirements |                          |
|--------------------|--------------------------|
| Power requirements | AC 100/110/220/230/240 V |
| Frequency          | 50/60 Hz                 |
| Power              | 1.3 kVA                  |

| Line filter specification |          |
|---------------------------|----------|
| Max. voltage              | AC 250 V |
| Max. current              | 5 A      |

## Transport summary

| Temperature range during transport and storage |        |
|------------------------------------------------|--------|
| Minimum temperature                            | - 5 °C |
| Maximum temperature                            | 50 °C  |

## Crates Dimensions

| Content         | Crate weight | Content weight | Size mm(LxWxH) |
|-----------------|--------------|----------------|----------------|
| Magnet unit     | 570 kg       | 1960 kg        | 1710x1860x1820 |
| Covers          | 127 kg       | 60 kg          | 1400x900x1850  |
| Electronic Box  | 110 kg       | 130 kg         | 1260x920x1900  |
| Bed and Monitor | 95 kg        | 128 kg         | 1470x760x1250  |

## Technical Data summary

| Dimension of system components |            |             |             |             |
|--------------------------------|------------|-------------|-------------|-------------|
| Part                           | Width (mm) | Length (mm) | Height (mm) | Weight (kg) |
| Magnet and Patient Table       | 1244       | 2495        | 1564        | 2100        |
| Electronic Box                 | 526*       | 632         | 1467        | 210         |
| Operating Table Standard       | 1080       | 800         | 740         | 30          |
| Operating Table High           | 1100       | 900         | 800         | 35          |
| TFT Monitor 18"                | 399        | 404         | 404-504     | 8           |
| PC Unit                        | 260        | 440         | 430         | 7           |
| Pavilion (aluminum)            | 4000       | 3650        | 2350        | 500         |

\* 793mm considering also the lateral holders

| Heat dissipation of system components |       |
|---------------------------------------|-------|
| System                                | 400 W |

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